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The Electragist

Trade Mark Reg. U. S. Pat. Office.

Vol. 23, No. 2 | Official Journal of ASSOCIATION OF ELECTRAGISTS—International. | DECEMBER, 1923

"Our Business Must Come Through You"

INSPECTION certificates approve material used under the National Code but do not guarantee efficient or successful operation—these products, in addition to being approved under the National Code, are designed and manufactured under liberal quality specifications by the makers, that long life and satisfactory performance are assured.

Our warehouse and distributing service is designed to serve the requirements of the smallest and the largest electrical contractor.

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Branch: 56 Myrtle Avenue, Brooklyn, N. Y.

GENERAL ELECTRIC DISTRIBUTOR

"The Best Gongs Money Can Buy"

FARADAY

ENCLOSED-TYPE FARADAY SIGNAL GONGS

NAT. CODE STANDARD

VIBRATING—WEATHERPROOF—FOR BATTERY AND D. C. CIRCUITS

FARADAY SIGNAL GONGS are the standard of the world today! For important signal work they save far more than they cost for **they never fail!**

We call particular attention to the following important points of superiority:

1. **"High-Power" Armature,** Patented.—"High Power" armature allows the keeping of armature in magnetic field up to the moment of striking the gong—twice the power of any other mechanism made.

Model "A"

Model "B"

Model "C"

Model "AT"

2. **Breakage of Springs Cannot Disable Bell.**

3. **Insulated Mechanism.**—Frame of Bell carries no current at any time, as entire electrical mechanism is insulated from frame-casting. Bell may be mounted on metal without fear of grounding. All current-carrying terminals are mounted on Bakelite Pads.

Model "CT"

4. **Locking Side-Contact-Post.**—Patented split-section side-contact-post compresses both sections against thread of contact-screw and positively locks with cone-cap piece having taper thread; no injuring of screw thread and adjusting to a thousandth of inch assured at all times.

Model "CW"

5. **Solid Trunnion Frame.**—Solid Trunnion frame cannot work loose or move in any direction. Improved split-section, replacing old locknut or trunnion-frame compresses against upper trunnion screw and no amount of jarring can loosen the upper bearing.

Model "BT"

Model "CWT"

6. **Non-Turning Contact and Binding Posts.**—Non-turning and non-loosening binding posts equipped with split steel lock-washers prevent connections from ever jarring loose.

7. **Contact-Points.**—Contact-points are of Platinoid or platinum, as specified, and are always plainly marked on both screw and spring. Platinoid contacts furnished, unless otherwise specified.

A.C. TRANSFORMER SINGLE-GONG FARADAY ENCLOSED-TYPE BELLS

For Operation on 18 Volt A.C. Bell-Ringing Transformer Circuits and 100 to 250 Volt A.C. Light and Power Circuits, 25 to 60 Cycle

FOR SALE BY ALL FIRST-CLASS ELECTRICAL JOBBERS THROUGHOUT THE COUNTRY

MANUFACTURED BY

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"Here's a *real* cord, Ed"

"IT'S the toughest cord I ever saw. Why only yesterday, Joe came along with the five ton truck and ran right over it. Never hurt it a bit."

You can do that with "U. S." Royal Portable Cord because there is no outside fabric to tear and break, rot or become dirty. The tough, resilient rubber cover sheds abrasion like a duck sheds water. It is non-absorbent, flexible and affords perfect protection to the conductor, eliminating the danger and annoyance of "shorts."

You'll get four to five times the wear from "U. S." Royal Portable Cord that ordinary cords give you. Any of our Branches can supply you.

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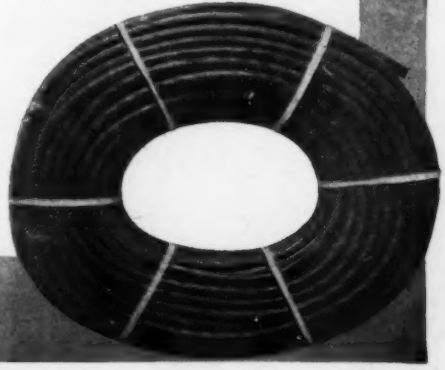

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The Electragist

(Trade Mark Reg. U. S. Pat. Office.)

The Official Journal Published Monthly
By the Association of Electragists—International.

FARQUSON JOHNSON
Editor and Business Manager

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JAY S. TUTHILL
Associate Editor

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A. T. Sears, Peoples Gas Bldg.

CLEVELAND OFFICE:
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Volume 23 **DECEMBER, 1923** **No. 2**

TO OUR READERS

All matter for publication must be in the hands of the Editor by the 10th of the month preceding publication.

All changes in our mailing list should be received by us two weeks prior to date of publication of the issue with which the change is to take effect.

TO OUR ADVERTISERS

Changes in advertisements and all advertising copy should reach our office not later than the TENTH OF THE MONTH previous to the date of issue.

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Table of Contents and Advertising Index Next to Last Page.

Slit SAYLORDUCT with your knife—you'll see the smooth inside that makes fishing easy.

The Big Smooth Raceway

of SAYLORDUCT is proving a money-making time saver on many wiring contracts. Fishing is sometimes a difficult job, but close weaving of SAYLORDUCT makes an inside surface, smooth, seamless and without lining. There is nothing to pull loose and obstruct the free passage of the wire. When you buy loom, see that you get SAYLORDUCT.

You'll know it by the famous DUCK trademark.

The SAYLOR ELECTRIC & MFG. CO.
Wheeling, W. Va.

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

ORANGEBURG
UNDERFLOOR DUCT SYSTEM
Patent Applied For

The

"once and for all" wiring system for office buildings

NOW office buildings can have an electric wiring system which will meet the needs of their last tenants as completely and satisfactorily as it meets those of the first.

When tenants change, offices are rearranged, or new equipment is added, the Orangeburg Underfloor Duct System adapts itself to the new requirements without the torn up floors and unsightly patchwork which ordinary wiring requires.

New outlets can be installed in any part of the floor by simply drilling a small hole which the outlet fills. Furthermore, new wiring can be drawn through at any time to meet unforeseen demands for additional service of any kind. The floor and walls are not disturbed or defaced.

This takes the guesswork out of wiring layouts. It prevents defacement of the property and unnecessary expense in meeting the changing needs of tenants.

Orangeburg Underfloor Duct System, American Telephone and Telegraph Building, N. Y. C. Installation by L. K. Comstock & Co., N. Y.

Send for a complete descriptive booklet

JOHNS-MANVILLE Inc.
296 Madison Avenue at 41st St., New York City
Branches in 61 Large Cities
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THE FIBRE CONDUIT REG. U.S. ORANGEBURG PAT. ORANGEBURG

Through— Electrical Materials FOR Utilities Jobber Contractor AND Dealer

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Sole Selling Agent

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DURADUCT
Non-Metallic Conduit

the original single wall loom with the roller-bearing wireway. First to be put up in boxes and first in quality. Uniform winter and summer.

DURACORD
Heavy Duty Portable Cord

with a cover woven like a fire hose, is a tough, long wearing cord, ideal for drills and other portable tools, and for extension lamps.

DURABILT PRODUCTS

DURAWIRE
R. C. Wire and Flexible Cord

is a high grade product made from Quality materials by experienced men. Cords are put up in an attractive orange box with black border.

DURAFLEX
Armored Conductor

is a safe product, made so by the fact that we make the wire for the inside ourselves and are thus assured of uniform Quality.

Tubular Woven Fabric Co.

Pawtucket, R. I.

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

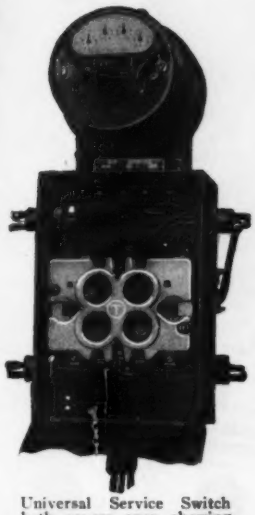
"Circle T"

Universal Service Switches

Give Maximum of Safety and Convenience

Universal Service Switch with outer cover opened showing two circuit branch fuse receptacles.

Standardized, of Course!



Universal Service Switch both covers open showing four plug fuse receptacles for four branch circuits.

This **new line** is of great interest to all contractors on account of its convenience and economy. There is no switch on the market as convenient to wire and as economical, because it does away with bothersome wiring of outside branch circuit box; from two to four circuits are included right in the cabinet itself.

Auxiliary cover makes load side branch circuit fuses accessible to consumer—fuses connected to service side of meter are sealed and the end walls and all accessories are interchangeable with those made by any manufacturer of universal switch cabinet.

The ten different types in which these switches are made also provide for either double fusing and switching in the main or double fusing in branch circuits.

No live parts exposed—maximum safety, service and simplicity at a price that will interest you.

Bulletin 56A describes this new entry on the list of "Circle T" Devices.

Universal Service Switch with both covers closed.

The Trumbull Electric Mfg. Co.

Plainville, Conn.

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114 Liberty St.

CHICAGO
2001 W. Pershing Road

SAN FRANCISCO
595 Mission St.

BOSTON

ATLANTA

PHILADELPHIA

"Circleteed is Guaranteed"

Finds the burned-out Lamp –instantly!
ARBORLUX JUNIOR
This Detector quickly finds the burned-out Lamp
No more hunting for the burned-out Lamp
ARBORLUX JUNIOR

Saturday Evening Post
December 1 and 15

The G-E Arborlux Junior

an improved series lighting set for Christmas trees

This 8-lamp set has a feature not ordinarily possessed by a series set. If a lamp burns out it may be found immediately by means of a detector located in the center of the set. The detector is also a receptacle for plugging in additional sets without rewiring.

This detector feature has an immense sales appeal. It will mean many added sales to the dealer who stocks Arborlux Junior now and is ready to take care of the demand created by advertising in the *Saturday Evening Post* during December.

Order now and be ready for last minute sales.

The G-E Wayne Toy Transformer

handy power for electrical toys

G-E Wayne Toy Transformer

Toy transformers should be sold with electric toys to insure for their operation a current supply as dependable as the lighting circuit. These toy transformers are also useful to furnish current for the G-E 17-lamp multiple-wired Arborlux, a more elaborate tree lighting set which should also be a feature of your Christmas stock.

Your G-E Distributor can supply you with G-E Wayne Transformers (made in three sizes), the multiple-wired Arborlux and Arborlux Junior.

General Electric Company
Merchandise Dept., Bridgeport, Conn.

33A-174

GENERAL ELECTRIC

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

Colorbeston

the asbestos-insulated fixture wire

"Colorbeston", a colored, asbestos-insulated wire, was developed to meet the need for a fixture wire that will match standard fixture finishes, but which has no braid to char when used in close contact with lamps operating at high temperature.

Asbestos Fixture Wires for Permanency

The superiority of asbestos insulation, notably DELTABESTON, on wires subjected to heat, is well established. Here is a perfect heat-proof wire for wiring fixtures. Its insulation contains no rubber or combustible material. It is a Deltabeston product insulated with fibrous asbestos, impregnated to resist moisture and applied to the wire in such a manner as to leave no openings such as are sometimes found in braided yarn coverings.

Colorbeston fixture wire comes in six permanent colors to match standard fixture finishes.

General Electric Company
Merchandise Dept. **Bridgeport, Conn.**

DWD-57

GENERAL ELECTRIC

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

Bridgeport Works
General Electric Company

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Indiana
Ft. Wayne, Decatur

Maryland
Baltimore

Massachusetts
East Boston, Everett
Gloucester, Hudson
Lynn, Pittsfield
Taunton, West Lynn

Missouri
St. Louis

New Jersey
Ampere, Belleville
Harrison, Bloomfield
Roselle Park, Newark
Little Ferry, Weehawken

New York
Schenectady, Maspeth, L. I.
Rochester

Ohio
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Pennsylvania
Erie, York
New Kensington, Philadelphia
Scranton

Rhode Island
Providence

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For Business in the United States

G-E Sales Office	G-E Distributing Jobber
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Arizona, Phoenix	Southwest G-E Co.
Arkansas, Little Rock	
California, Los Angeles†	Pacific States Electric Co.
California, Oakland‡§	Pacific States Electric Co.
California, San Francisco†	Pacific States Electric Co.
Colorado, Denver†	The Hendrie & Bolthoff Mfg. & Sup. Co.
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Connecticut, New Haven	Southern New England Elec. Co.
Connecticut, Waterbury	Southern New England Elec. Co.
District of Columbia, Washington	National Elec'l Supply Co.
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Florida, Tampa‡	Florida Elec. Supply Co.
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Georgia, Savannah‡	Carter Electric Co.
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Pennsylvania, Philadelphia§†	Philadelphia Electric Company Supply Department Frank H. Stewart Electric Co.
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‡No G-E Office †Warehouse §Service Shop

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GENERAL ELECTRIC

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The Electragist

(Trade Mark Reg. U. S. Pat. Office.)

FARQUSON JOHNSON
Editor and Business Manager

Official Journal of the
Association of Electragists—International

JAY S. TUTHILL
Associate Editor

Publication Office: 100 Liberty St., Utica, N. Y. *Editorial and Business Offices: 15 West 37th St., New York City*

Volume 23 **DECEMBER, 1923** **No. 2**

The Spirit of Christmas

It matters not how high, how low; how old or young; how rich or poor—at this season of the year there begins to come over every one of us a feeling of goodwill—a larger thought for others—a realization of our obligation to the rest of the world. This is the Spirit of Christmas.

Such thoughts are expressed in the giving of remembrances. In former times such gifts as candy for the children seemed to suffice; then the older ones were remembered with flowers and fruits; until at last, in order to outdo each other, came showers of flubdubs—mostly ornamental but of little use. But nobody cared, so long as the gift expressed the yuletide spirit.

Since the electrical industry has given something practical as well as ornamental to the world, a new idea has come to Christmas givers—present something useful. And now about the first place that father goes to look for gifts is to the store that exhibits electrical appliances. Mother goes there, too. Even sister and brother, seeking something useful for home folks, select electrical gifts.

Advertisers in the electrical industry have brought this about. Read the slogans: Make It An Electrical Christmas, Give Something Electrical, Make Your Place An Electrical Gift Shop, Electrical Gifts Are Useful, Electrical Christmas Headquarters, and so on, passed along from manufacturer to retailer until the public now seeks the practical and useful holiday present.

Electragists with stores are taking advantage of this new order of Christmas giving. Windows and interiors are appropriately trimmed and decorated, and the whole atmosphere takes on the spirit of useful giving.

So let us all in the electrical industry encourage the one thought—Give Something Electrical—until Christmas shall become more and more the day of practical presents.

A Merry Electrical Christmas To All!

Price Cutting Contractors

It goes without saying that not all electrical contractors are price cutters. Take any group of a dozen of them and the chances are that every last man of them would deny that he is a price cutter. But the evidence is against some of them.

For instance, an architect has recently disclosed the figures on a small job. The low bid is $898, while the high bid is $1298. Why the "98" in both cases? Because those bidders are price cutters. The low fellow guessed that the other fellow would bid $900, so he cut the price. The high bidder made a bad guess, but hoping to save himself, he also sacrificed a two dollar bill.

These cases are not exceptional. On the same job the next to the low bid was doubtless figured at $1,100, but it was cut to $1098. Two others figured—or guessed—around $1200, but they both cut their prices, one to $1190 and the other to $1188.

Such figures are typical—so says the architect. If ten electrical contractors bid on one job, at least eight bids will just cut the round figures a few dollars each. So rarely are round figures quoted that this architect says when he sees such a bid he at once concludes that the bidder has actually estimated the cost of the job, has added a fair margin, and is willing to stand by what he believes to be an honest bid.

How much more satisfactory it is to sell a job on merit rather than on cut prices. As Commissioner Eidlitz says: Quality . . . and Fair Dealing. Is price cutting fair dealing? Can there be any assurance of high quality workmanship and material at cut prices?

The quickest and surest way of eliminating the curbstoner is to accurately estimate the job, submit a fair bid, and then courageously sell the job on its merits. Because of the price cutter, this requires courage—and more, it requires salesmanship. Cultivate such a practice and the price cutter will soon be looking for a job.

The Everlasting Tinkerer

We recommend first, last and all the time that every electrical appliance, device or appurtenance of any sort should always be installed by a boni fide electrical man. But wherever electrical goods are retailed certain electrical articles are bound to be sold to the everlasting tinkerer who likes to do his own installing. It is hard to get around this fellow, for he invariably is a constant buyer and sometimes is as good a bell hanger as the chap in the trade who poses as such.

There always is a considerable number of switches and pull chain sockets sold to these individuals who attach such devices themselves. If they could not do the installing they would not make the purchase.

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It must be admitted that when a man goes to the trouble of installing a switch or a socket or replacing one, for example, he undoubtedly is a man keenly appreciative of comfort and convenience. He also is a man with a certain amount of mechanical skill and therefore likely to appreciate mechanical advantages and improvements.

It is possible that to some extent this man is economical and does this work to save the electrician's charge, but to a very much larger extent he is doing this work himself because of the pleasure obtained from handling tools. This is the same man who goes home loaded down in the early spring with garden tools and seeds, and who later on is busy with the lawn mower and the garden hose.

This man is an excellent subject for the Sell 'Em Something More philosophy. He is not a man who throws his money away. Prove to him that you are giving him something for it and he parts with his money easily. When such a man comes into the store it would take very little salesmanship to sell him a toggle switch in place of a push switch, and a pull chain socket in place of a key socket, or a luminous switch instead of the plain one without this attractive feature.

This man is interesting from another standpoint also: He carries these devices home, installs them, and takes pride in them. He calls in his friends to show them the finished job and explains and demonstrates any special feature which he has incorporated in his work. In other words, he becomes a booster. If you sell him some new items he will in turn sell his neighbors and friends. Does the electragist know of any better way to start something than by getting a few of these good fellows working for him?

Motor Repair Work

Motor repair work has grown by leaps and bounds during the last few years. Where it was recognized only as a side line several years ago, at the present time many contractor-dealers are devoting a large part of their sales effort to this trade and in the larger cities companies will be found that are doing such work almost exclusively.

One thing about it that is attractive is its freedom from curbstoner competition, and this doubtless is the reason why so many are broadening out into this field of endeavor. A certain amount of capital is required to enter the business, on account of the diversified equipment necessary to start operations and give proper service, so that every Tom, Dick and Harry cannot easily get started in it.

But there are many problems to solve. The matter of service is paramount, especially since price so recently held first consideration. Costs and the distribution of overhead are both fundamental factors. And then there are the methods of accounting and all the other phases of business to contend with, to say nothing of the factors peculiar to this work which must be given special attention.

Recognizing the importance of such a business to electragists, the Association of Electragists has formed a motor repair section, through which will be issued a manual. It is earnestly hoped at the Headquarters office that sufficient data and information may be compiled which will prove of far reaching benefit to members who desire to branch out into this work, or undertake it exclusively.

Readers of THE ELECTRAGIST engaged in motor repair work are urged to coöperate with the A. E. I. in this important undertaking by sending to Headquarters whatever is available in the way of useable information. In this connection, the series of articles on this subject by George P. Svendsen now appearing in this magazine are worthy of careful reading.

In the first of these articles, published in these columns last month Mr. Svendsen outlined the preliminary steps to be taken. This month's installment sets forth some of the practical solutions of the more complicated problems. The final installment, to be published next month, should be carefully studied, and when the entire series has been properly digested, it is more than likely that additional material will be suggested, which will assure an early issue of the desired manual.

Retailing Electrical Appliances

Much has been said and written during the past few years concerning the relative value of various types of retailers of electrical appliances—whether it be the hardware or furniture dealer, or the electrical contractor-dealer, or some other type of retailer. No satisfactory decision has yet been reached.

Now comes a letter to the editor, from a manufacturer of electrical appliances, asking for further information on the subject. This manufacturer says that in his studies of the market for electrical appliances he finds that other manufacturers and jobbers are using hardware and furniture dealers and even jewelry shops as retailers for their products. He says that in some cases it has been found that these dealers have done better in distributing electrical appliances than have the regular electrical shops.

This would be very strange if true, but it can be true only with certain exceptions. "Some cases" doubtless means the jewelry store that sold a large number of coffee percolators just before Christmas; the drug store that ran a cut price sale on irons; the furniture store that conducted an intensive house to house canvass on washers—all compared with the little side street contractor-dealer who sold only a few of each of these appliances, but was called upon to service every appliance that ever was sold in his immediate neighborhood.

And there is where the practical electrical man comes in—he is the one that is called upon for servicing. He may not be a capable merchant; it must be admitted that he has not had merchandising experience; he has not had the advantage of inheriting a knowledge of trade and barter in electrical appliances from his forefathers; and he is dealing in technical goods rather than well known staples that anybody can sell.

But the contractor-dealer does know how to install, repair, and service electrical appliances. With that knowledge as an essential starter, he becomes a factor in electrical merchandising that compels the most earnest consideration. Regardless of the type of retailer the manufacturer may select to distribute his product, he also should cultivate the good will of the contractor-dealer. More than this, by all means he should devote a part of his energies to creating and developing greater sales effort among these practical electrical men upon whom he must depend for service.

Where an appliance is purchased and then not used by the purchaser because it was not properly demonstrated

or installed, not only is the manufacturer of that appliance injured, but an injustice is done to the industry; so the manufacturer should strive to have his products properly marketed, which sometimes may be quite as important as the volume of sales.

Manufacturers in all lines always have and ever will seek the largest market they can find. Volume of business helps to reduce production costs. But in things electrical the public is still in the process of being educated. To derive the full comfort and convenience from the use of electrical appliances, the public must be satisfied. Complete satisfaction comes from knowing how to operate and maintain the appliance in use. Naturally the contractor-dealer's opinion is sought by the public, for nobody could be so stupid as to expect a drug clerk, or an undertaker's assistant, or a watch repairer, or a tinware salesman to render an expert opinion on electric appliances.

So the appliance manufacturer should not overlook the advantages of close contact with the electrical contractor-dealer—the best of these now being known as electragists.

How to Sell the Housewife

By Alice Carroll

These Potent Statements Were Made by S. E. D. Staff Member Before Toronto Meeting of Electragists November 26

Domestic scientists tell us that ninety two percent of the women of America do their own housework, that seventy percent of their time is spent in and about the kitchen, and that they walk eleven miles each day in the performance of monotonous household tasks which might readily be simplified and shortened by the use of electric labor saving devices.

If we are ever to standardize the electric home idea we must sell household appliances in a very different manner than we have in the past. We must learn to speak the language of the housewife instead of the technical jargon which most of our salesmen employ and we must sell *results* instead of machines and devices.

If the electrical dealer wants to make an impression on his women customers —and I might say his *best* customers, for eighty five percent of all the buying is done by women—he must stop talking in terms of nuts and bolts and revolutions per minute and begin to emphasize the time saving and labor saving propensities of this equipment.

He must picture to the woman snow white clothes on the line before noon on Monday without the dragged out look and backache which usually attends a morning spent over a wash board. He must picture a house cleaned and kept clean by means of the vacuum suction method, which after all is the only sane method, for there is no advantage in raising clouds of dust with a broom only to have it settle back again on books, pictures and furnishings.

It is high time we began to emphasize what an electrical appliance will do—not how and why it does it. Let's stop talking mechanics, and instead greet our women customers with the good news that women who do their housework electrically do not get old at thirty five. That's the appeal, the human, personal appeal.

But in your zeal to sell this equipment do not sacrifice the goodwill of your customers. Appliances cannot be sold successfully unless they are demonstrated thoroughly, installed properly and serviced diligently. Nor is it enough for a salesman to run a vacuum cleaner over a brand new rug on which some nice clean corn starch has been sprinkled or to put a dainty bit of lingerie in a washing machine and expect the woman who does her own washing and cleaning to be impressed.

Alice Carroll

Every woman who comes into your store has her own housekeeping problems, and upon your ability to appreciate these problems and to offer some practical suggestions as to their solution will depend your ability to successfully sell that woman an electrical household equipment.

A woman who does her own housework, including her washing and ironing, is not impressed when you tell her that she can toss the whole week's wash into the washing machine and have it come out spic and span by the mere pressing of a button. She will be far more interested if you admit that soaking clothes in cold water for a short time before putting them in hot suds is just as desirable now as it was before the advent of the electric washing machine. It is an insult to the housewife's intelligence to tell her that dishes can be washed, clothes ironed, and rooms swept by the mere pressing of a button.

The application of electricity to everyday household tasks has been an important step toward the attainment of better and happier homes and more leisure hours for women folk, but we cannot expect to sell this equipment by the same means we employ to sell staple articles.

Every electrical appliance should be completely and thoroughly demonstrated so that when it is installed in the home it will accomplish the results promised. Whenever possible, the sale of electrical household appliances should be made in a home atmosphere—in a section of the store or show room which does not invite bystanders, because every woman is more or less conscious about using any mechanical device for the first time and is apt to forego the purchase rather than learn to operate it before an audience.

I am a great believer in the establishment of schools of electrical housekeeping—maintained by the local electrical league or the local central station —schools where women can be taught

to keep house electrically—not only the use of the separate appliances but the coördinated and successive steps necessary to the conduct of the home with the aid of electrical labor saving devices.

A technique of electrical housekeeping may thus be developed which will enable the woman to shorten her hours in kitchen and laundry, and free her for educational pursuits, outdoor exercise, the companionship of her family and the civic affairs of the community in which she lives.

Stress the time saving, the labor saving, and the beauty saving propensities of these devices, and women will make a beaten track to your door.

In this connection it has been brought to my attention that the servant problem is not as acute in Canada as it is in the States. Perhaps you Canadian men are more fortunate than we are in getting servants, but are you able to keep them contented and happy after you get them? It has always been a pet theory of mine that electrical household equipment not only makes it possible to get along without servants but it makes it easier to keep servants.

The average servant—unless you have a very rare variety in Canada—is not at all averse to having her daily tasks lightened but she naturally protests against using any mechanical device which she does not understand completely and which she cannot operate with efficiency.

She will prefer to use a vacuum cleaner instead of a broom if you demonstrate it thoroughly and surely she will favor the electric washing machine in preference to the old fashioned wash board. The difficulty has been that salesmen have been too anxious to sell the lady of the house, and have paid little or no attention to the maid who is expected to use the appliance. He sells the person who is to pay the bill and gives the servant such an incomplete demonstration of the appliance that trouble begins almost immediately. It is generally conceded that domestic servants are antagonistic toward electrical labor saving devices, but if this is true the electrical dealer has only himself to blame.

But whether the servant is to use the equipment or whether we are selling to the woman who does her own housework, let us get away from technical expressions and sell on the basis of what the appliance will do to save time, to save labor and to save youth and beauty.

We all know that the market for electrical devices is widening and that the channels of distribution are increasing. The department store, the hardware store and in many instances the drug store have been quick to realize the need for this labor saving equipment and have lost no time in the establishment of electrical departments to meet this need. The electrical dealer, however, is the logical man to sell electrical equipment and it rests entirely with himself whether or not he allows other stores to get the bulk of this business.

Selling, after all, is largely a matter of service, and the man trained in mechanics and electrical installations is the man best equipped to render satisfactory service on electrical household equipment.

There is no longer any question in the mind of the contractor as to whether or not he should sell appliances. He is forced to be a merchandiser nowadays in order to successfully conduct his contracting business. The home builder naturally turns to the man who wires his house for information and advice regarding electrical equipment to be installed. As a matter of fact the uptodate contractor renders this service free of charge, and while he does not necessarily solicit the business he is the logical person to supply the equipment and nine times out of ten gets the order.

Electrical labor saving devices used to be bought piecemeal—an iron today and a toaster tomorrow—a washing machine this year and a vacuum cleaner next, but since the home building boom it is not unusual for a dealer to be called upon to furnish complete laundry and kitchen equipment for the new home. And this is the kind of business to go after—it is the most profitable and at the same time it is the quickest and surest means of standardizing the electric home idea—and that of course is what we are all after.

We must not lose track of the fact that electrical comfort and convenience in the home are largely dependent upon an adequate wiring system and an abundance of convenience outlets. The successful contractor will be prepared to make certain recommendations as to the location of outlets and the selection of equipment, and it is to be hoped that a competitor will not step in and tell the home builder that he does not need half the number of outlets and that he can guarantee him all the light and power he needs at half the price.

This so often happens. We do not seem to stand together in the electrical industry the way others do. We do not uphold our prices, we do not uphold our workmanship, and we do not uphold each other. Just try going into a hardware store and telling them that you can get the nails you want two cents a pound cheaper across the street and they will calmly tell you to go across the street and get them. In an electrical shop, however, the price would probably be slashed until it not only did not show a profit but until there was an *actual loss*.

And in closing I want to say a word about service—service is a hobby of mine, you know. It is less expensive to demonstrate equipment properly than to service it continuously, yet dealers are constantly sending out washing machines, ironers, vacuum cleaners, dishwashers and the like without sufficient demonstration to insure even fifty percent efficiency of operation.

How can we expect to usher in the electrical millennium while this practice obtains? None of you are in business only for this year or next—and the only way to guarantee future business is to create goodwill now and the best way to create goodwill is to give good service.

Generally speaking there are just four reasons why electrical household appliances require service; first, because of faulty engineering design; second, because of defective raw materials used in their manufacture; third, incompetence on the part of the operator; and fourth of course normal depreciation with wear.

Obviously if a manufacturer puts an appliance on the market that is faulty in design, the housewife who buys it and discovers its shortcomings should not be expected to pay for the mistakes of the engineering department. Likewise if a defect is discovered in the raw materials which go to make up an appliance, the housewife should not be charged for replacement and repairs.

In the case of the third cause for service—incompetence on the part of the operator—I am fully convinced that all such service charges should be borne by the consumer, but I am still further convinced that if we *sell* our appliances properly in the first place very little of this sort of service will be required.

Service after the sale should be paid for by the consumer, but the sale of an appliance should include installation, thorough demonstration, and a followup service over a period of at least thirty days. Then if trouble arises it is a safe bet that it is the fault of the operator.

As to normal wear and tear—it seems only fair that the consumer pay a fair price for the necessary repair parts and for the labor involved to put the appli-

UMI

ance in working condition—as a matter of fact, I find that if women have been given courteous and fair treatment by their local dealers they are quite willing to pay for any necessary repair work.

To summarize, the future success or failure of your business very largely depends upon the amount of service you are willing to render—this does not mean giving repair parts away or remodeling washing machines free of charge, but it does mean courteous attention to women customers, and appreciation of the housewife's point of view, and an ability to talk to her in terms of comfort and convenience rather than mechanical construction and engineering perfection.

Charles Proteus Steinmetz, the Man

How His Life Work Has Benefitted Electragists is Told By a Fellow Employe of the General Electric Company

At first thought it may seem that the labors of Charles Proteus Steinmetz, the electrical wizard, the discoverer of the law of hysteresis, the maker of artificial lightning, the writer of books on deep and complicated phases of electrical phenomena, were far removed from those of the electragist, whose field is to bring the electric current to the aid of the tired housewife, the busy store employe and the artisan at his work bench.

But not so. Theirs was a common purpose, though it found different expressions. One great object of Dr. Steinmetz was to make electricity available for doing the world's work. In the roaring torrent he saw a source of power that might be made to make the labor of humanity lighter. It was his chosen task to find how; it is the electragist's duty to translate what he and others discovered and devised into everyday service; to complete the final link between the waterfall and the glowing table lamp, the steaming percolator, the whirring little motor. *Service* was with him a cardinal principal.

Rendering Real Service

There were some very specific services that he rendered in the field of applied electricity, also. Every electragist knows how important a part alternating current plays in his work. Not all, however, realize what an extremely leading role Dr. Steinmetz took in the development of this method of transmission.

This is well set forth in a statement by a fellow engineer who for years had been intimately associated with him and whose own eminence in the electrical engineering profession gives it exceptional weight—E. W. Rice, Jr., honorary chairman of the board of directors of the General Electric Company.

"About the time Steinmetz came with the General Electric Company," said Mr. Rice in giving an outline of Dr. Steinmetz's engineering work and achievements in a memorial address shortly after the latter's death, "the use of alternate current for lighting power and other purposes was just beginning to be of demonstrated commercial value. Advance in the commercial use of alternating current was hindered by the extreme difficulty of understanding the technical nature of its action and of the various phenomena connected therewith. The engineer who had been

Dr. Steinmetz at Work

working with direct current found it difficult to understand, and therefore to correctly design alternating current apparatus.

"Steinmetz took hold of the situation with characteristic energy, and soon brought order out of chaos. He abolished the mystery and obscurity surrounding A. C. apparatus and soon taught our engineers how to design such machines with as much ease and certainty as those employing the old familiar direct current.

"He had already made the discovery that alternating current problems could be attacked and solved with success by the use of what was known as complex quantities. By the use of this system he not only was able to solve these problems himself, but to teach our engineers to do the same work by methods almost as simple as ordinary arithmetic and algebra. Steinmetz himself regarded this as one of his greatest contributions and called it the development of the 'Symbolic Method of Alternating Current Calculations.'

"Steinmetz's practical inventions literally cover the entire field of electrical applications: Generators, motors, transformers, lightning arresters, lighting, heating and electrochemical operations. Of these many inventions—which were set forth in some two hundred patents—perhaps the most important are the induction regulator, the method of phase transformation, as from 2 phase to 3 phase, and the metallic electrode arc lamp.

"He devoted much time to the development of the mercury arc, and by his masterly methods did much to improve this interesting and important type of illumination. These and many other of his inventions have found permanent and extensive use in the industry.

Produced Lightning

"During the last ten years when alternating current power transmission lines of great length, carrying large amounts of energy, have spread all over the country, to use his own words, 'an old enemy became more and more formidable—lightning,' and for many years the great problem which pertained to the successful development of electrical engineering was that of protection from lightning.

"The study of this problem led Steinmetz to produce his famous lightning generator of which so much has been told in the public press. In the hands of Steinmetz and his assistants such progress has been made that the nature of the phenomenon has been so elucidated that as a result it is possible to proceed with confidence in the further development of the large high powered transmission systems making possible the wizard's vision that the day was rapidly

approaching when the electrical engineer would supply the world's requirements of energy over transmission lines which would cover the country with a network similar to that of the railways, the one taking care of the distribution and supply of energy, and the other carrying the materials.

"That I have not overstated the value of Steinmetz's work in this early period is indicated by the message of an eminent electrical engineer, Professor Harris J. Ryan, president of the American Institute of Electrical Engineers, who says: 'Through a period of years Dr. Steinmetz stood almost alone as the one electrical engineer in the world capable of defining and solving the many perplexing problems encountered for the understanding and improvement of the transformer, induction motor, alternator and polyphase high voltage system, the modern fundamental implements of the electrical engineer'."

Dr. Steinmetz served as president of the A. I. E. E., the Illuminating Engineering Society and the National Association of Municipal Electricians; was a fellow of the American Association of Electrical Engineers and of the American Association for the Advancement of Science; and a member of British Institute of Electrical Engineers and the American Society of Mechanical Engineers.

He took out his first citizenship papers very soon after coming to this country, consummating his complete citizenship five years after his arrival. He gave liberally of his time and talents to civic obligations, serving Schenectady as a member and president of the board of education, and as president of the common council.

He never married, but made his home with his adopted son, J. Le Roy Hayden, and the latter's family. He is survived by this adopted son, and by a half sister, Miss Clara Steinmetz of New York City. He was essentially kindly, democratic and genial, and in addition to the general admiration for his mental gifts and scientific attainments, he was held in deep personal affection by those who knew him.

Author of Text Books

He was the author of a number of books which are standard texts on the fields of electrical engineering they cover, and of many technical, semi technical and popular articles on the applications of electricity. Those familiar with his writings and with his trend of thought realize that wide as was his mental sweep over the electrical field, and including as it did abstruse questions of engineering, his animating thought was how to make electricity most useful to humanity. Bringing it to the aid of the housewife in her daily tasks, to the workman at his bench, to whomsoever toils at manual labor, was one of his great objectives. In that he and the electragist sought a common goal.

The Present Status of Electrical Merchandising

By JOHN F. GILCHRIST

How This Important Subject Now Stands Was Explained by Vice President of Commonwealth Edison Co., Chicago, Before the Washington Convention of the A. E. I.

[Following Mr. Gilchrist's talk there was considerable discussion regarding it from the floor of the convention. It is felt that this discussion is of interest and importance to electragists, and the comments from individuals are therefore appended hereto.—The Editor.]

A great many people have been getting interested in this matter of merchandising of appliances in our business. We are finding that there are a good many more angles to it than we were able to see a few years ago. In the first place we are finding out that it is a tremendous business, and that it has possibilities that are almost equal to anything that we have ever developed.

We are also beginning to see that we have a great responsibility in putting these devices in the hands of the people of our day, because really there is no group of household utensils which for a moment compares with these devices which mean nothing except the application of power to the household duties, in the same way that power is applied to the factory, to the commercial house, and to all the business of the country. It is simply the application of power to household use.

Now what does the application of power to any human activity mean? It means greater production, with less expenditure of human energy, and all the things that go with it. It means the possibility of living better, and of being a better citizen, and being able to do more in the world, because the household duties which are necessary to life and health and our physical well being, are done very much more easily.

Can you think of anything that would be any more likely to prolong the average life of the women of this nation than the putting of a washing machine into the home of every American family? That machine saves the housewife a great deal of disagreeable labor. We

—Courtesy P. A. Geier Co.

This Christmas Display Setting Forth a Significant Interior of an Electric Home Won First Prize in a Window Trim Contest Last Year

all know, if we think at all about it, how arduous that task is. Perhaps we can look back to the time when our own mothers were exhausted to the point of not being able to take an interest in anything which went on around the family supper table, because of a back-breaking day which they had put in over the wash tub.

Therefore I say that if these devices are put into the homes of the people they will have a more beneficial effect than anything I can think of on the standard of living of our people—not only on the standard of health, but on the entire standard of living of the people of this nation.

I will say that if you fellows in the industry had to do the family washing, there would be more washing machines in the homes than there are now. We would only have to experience the doing of that work to realize what these devices mean.

Business Surface Only Scratched

Now I feel that we have only scratched the surface on this appliance proposition. We haven't gotten any ways in it at all. Knowing the value of these things it is our duty to put them into the hands of the people, and that is a greater responsibility than any responsibility of making money on them.

When you get right down to it, the business that is going to survive, is that which is founded on service, and so long as you can serve and be engaged in a business which serves humanity, you can forget about the emoluments, because if they are just and fair they will take care of themselves.

If we just devote ourselves to rendering the best possible service, all the other advantages which we crave will follow after, if we make a thoroughgoing success of rendering this service.

Speaking of the size of the business—and this is a statement which I have made a good many times—if you who pride yourselves on having a thoroughly equipped electrical home will just sit down and calculate the retail cost of the various devices which you have in your home—I mean one that is thoroughly equipped—such as refrigerating machines, washers, ironers, ventilating fans, sewing machines, and the application of power to anything that can be done electrically, at the present time—without going into the refinements—you will be surprised to see what the value of those appliances is in your own home.

I don't pretend to have a home that is electrified to the extent that some of these cranks in the business have electrified their homes, but I was sitting in my living room one Sunday afternoon thinking of some of the advantages that we are enjoying. I think perhaps what started me to thinking on that line was the fact that I heard the ice machine start up in tht basement, and I thought I would have to move that machine to a point where I wouldn't hear the noise. In that way I got to thinking about the various motors, and I easily counted up, in a very small house, nine or ten motors that were in daily use, and most effectively.

George Baldwin of the General Electric Company, vice president in charge

John F. Gilchrist

of the appliance end of the business, has figured out that these devices aggregate at the present time something like seven or eight hundred dollars—I think he puts it as between seven and eight hundred dollars—and he makes the statement that they are the type of devices that every family in the country can afford to use.

What Average Person Can Afford

Of course our ideas of what we can afford, have expanded somewhat in the last few years, but I would say that anybody could afford to have anything in his home which contributes enough to the operations of living so that the time which he releases to himself and his family can be put to tasks which will bring a greater return.

Now what are those who are doing the most in any of our communities, doing in the way of putting these appliances in the homes?

I have here a list of eleven companies—central station companies—which are doing the most in this appliance business, and these are the figures for seven months, based on the government census of 1920. These figures are taken from the first seven months of this year's business, so that you see, allowing for a reasonable growth, these figures are not really as high per capita as they appear to be.

Of those eleven companies, the company which did the greatest amount of business did seventy cents worth of business per inhabitant during those seven months, or ten cents a month—a dollar and twenty cents a year. In that particular city the residence customers run about one meter to six inhabitants.

The next one I have on my list did seven cents a month business or eighty-four cents a year.

The next one did eight cents a month; the next is less than two cents a month; the next is seven cents a month; the next, five and a half cents a month; then one cent a month; three cents a month; less than two cents a month, and three and a half cents a month.

Think of it—here is marketable stuff, amounting to seven or eight hundred dollars, and the people who are doing the most are edging in on that at the rate of ten dollars a year! At that rate it will be seventy years before we get the devices that ought to be installed in every American home, in the homes. And before one tenth of that time is gone by, you know and I know that there will be other devices on the market of equal value. We are not beginning to keep up with the production of electrical devices.

Now the natural query is, if this is such a wonderful business, if it has such possibilities why are we dabbling in it? And that is all we are doing—just dabbling.

Distribution Is a Joke

A gentleman said to me the other day—I won't mention his name, but he is a man who is very prominent in this business and is responsible for the distribution of the output of some very large factories—he said, "Somebody has got to get up nerve enough to say that the distribution of these devices by the contractor-dealer is a joke."

Now I am going a little further—I am not going to say that to you, but I am going to say that they have not only got to get up nerve enough to say that of

the contractor-dealer, but that it is true of the jobbers and the central stations as well—that the distribution of these goods by all of them is a joke.

What is the trouble? We have made the very interesting discovery, in the study to which President Strong referred that we have been making, that apparently the companies which are going after this business the hardest have had the experience that the more business they do the more money they lose.

One of the companies in the group that I personally have been studying very intensively—the company that I told you about in that list that did about one cent's worth of business a month per inhabitant—claims to have been making sixteen percent.

Now you know and I know that with the prestige that the central stations have in the various communities, we could build a stockade around our appliance department in Chicago, put a disagreeable girl in charge of it, make the people wrap up their own bundles and carry them home, and yet a certain number of people would come in and buy that stuff of us. They would come in and give us their business, because the prestige of the great company which furnishes energy in that community, is such that it will do a certain amount of business in spite of everything, and on that basis we could make money under present conditions.

But how far will we get with that kind of policy, or anything that comes anywhere near approaching it? We won't get anywhere. We have got to get out after business, just as the most enlightened merchandisers of this period go after their business, with all the conveniences that make it so easy to do business, which make it so easy to go into stores like those that we find in New York, Boston, Philadelphia and Chicago.

And we have got to go beyond that. Why? Because we are not yet out of the pioneering branch of the business. We have got to go out into the homes of the people and demonstrate the usefulness of these devices, if we are going to do anything like the amount of business that we with our responsibility, and our opportunities should do, if we are going to in any way justify our right to administer this great industry.

Now all that costs money. You can't put salesmen out in a territory and canvass such territory; you can't sell goods on deferred payments—and the larger articles have got to be sold that way, or the people will not for years have the advantage of them—you can't do all of that without entailing a cost which is infinitely greater than that of the biggest and most liberal merchandiser among the druggists and department stores.

Business Got Off on Wrong Foot

This business got off originally on the wrong foot, and a great offender in my judgment has been the central station. We didn't really appreciate what it was. It came along in a very inconspicuous way, and the thought then was, "Get these devices out into the hands of the people, regardless of any profit." Why, some people went out and gave away thousands of dollars worth of stuff.

That might look all right to the uninitiated, to a man who is an absolute novice in the business; but it just shows that we haven't thought far enough ahead. Where would you people be, trying to compete with the central station in giving this stuff away? If they were not literally giving it away, they were selling it on a basis that no independent company or individual could sell it, and live.

There is nothing worth while in the industrial or business world that can possibly succeed, unless there is enough in it to pay the cost of doing business in an uptodate, civilized way, with fair remuneration for the time and intelligence expended by everybody who is essential to that industry.

Take an illustration: Suppose our great government, when gas automobiles came out, somewhere around 1897 or 1898, had said, "Great—we are going to put this in a position where all the people can enjoy it. Go ahead and make all the cars you can, and distribute them, but you can't charge more than a hundred dollars apiece for your automobiles, because we have got to put them in the reach of everybody." How far would the automobile industry have gotten, under such a policy? It never would have been born. Any such restriction as that would have absolutely choked it, and yet has there been anything that has been of greater benefit to the nation than the automobile, intelligently and moderately used? And with the development and extension of the business we have rapidly come into a position where the cost has been cut down in a way that would have been deemed impossible when the industry was first born, especially in view of the period of rising prices which we have gone through in the last decade.

While it is not quite so ridiculous as that, the position in which the appliance business is today is not very far removed from that very situation.

The first thing that we have got to do, as I see it, is to find out what it really does cost us to do this kind of business. Then when we find out what it costs, we have got to have backbone enough and courage enough to work together, to sell our goods, small as our sales may be, on a basis which will pay

Caught by the Snap Shooter on the Lawn of Washington's Home at Mount Vernon in Convention Attire, Left to Right, Ward Thomas, Frank Shull, Sam Chase, Bill Goodwin and the Editor

that cost, and show a fair return to the people who are really necessary in the distribution of the appliances.

If people are not necessary, they haven't any right to exist. But if they are necessary—just a moment on who is necessary:

Who in the Trade Is Necessary

I think we have all rather laid it up against the manufacturers that they have gotten out into this appliance business and put their own sales force to work, apparently ignoring the regular established channels and avenues through which this business should go. But I am inclined to think that we are probably as much or more to blame than they are. We are not to blame because we sold the stuff at a loss, but we are to blame because we didn't find out what the trouble was, and get together sooner. We can't blame a manufacturer for producing goods and distributing them because he can't find distributing agencies already established.

I think we have all fallen down in that respect. I think we are beginning to wake up, but I believe that we will get back to the basis where, just as in the distribution of old line merchandise which the world has known for centuries, we will find that it will boil down to the manufacturer who produces the goods, the wholesaler, the distributer, or the jobber, who takes the goods from the manufacturer in large volumes, on a program which enables cheap manufacture, moves them, transports them to different parts of the country, places them in the real system of distribution, in the hands of the retailer, and rendering the assistance to the retailer which the jobber should render.

And I think in that regard the jobbers have fallen down. I am very much in favor of that organization. I am a great believer in it. I think the jobbers have done more in studying our industry than any of the rest of us, but I think many of them are falling far short in the service which they should render—the service of extending credit, the service of carrying adequate stocks, the service most particularly of educating the retailer—because the jobber should be in a position better than anybody else to educate the retailer in the retail distribution of these goods.

The central station in my judgment has a very great function to perform. I think the central station should be in the retail merchandising business, and I believe that you will find that where the central station is not in the retail merchandising business, the business is not flourishing—that it is a dead situation electrically.

But the central station, if it even conserves its own direct interests, has got to do business in a very different way from what most of us have done in the past and many of us are still doing. They have got to recognize the fact that the contractor-dealer is a very valuable outlet for the distribution of these appliances, and they have got to do business on a basis where the independent contractor-dealer can sell his goods in competition with the central station prices, under which he can live and make such a profit as will draw into this business the intelligence and the capital which it is necessary to have, to do business.

Business Does Not Attract Right Men

The reason why so much of this business is done in such a picayunish way, and by people of so small capacity in a business way, and of such small mental capacity, is that the setup of the business has been such that it is not attractive to men like those in this room, who can devote their energies and intellects to other branches of the business, or even to other businesses, on a profitable basis, which will enable them to take pride in the rendering of service to the people, and which will enable them to make a competence in the world.

Therefore the central station must do that.

One of the great difficulties is that the central stations naturally will do a larger business, probably having a larger purchasing power, and consequently it is very obvious that they will be able to buy these goods cheaper than the small dealers, and if they sell on a basis of a percentage above cost, they are almost bound to undersell the small dealers. And yet, if they do that they are losing a very important thing—they are failing to develop a distribution system which later on will be a strong and valuable system, from their own standpoint, by coöperating with those people in the industry who have thrown their fortunes into the same community.

It seems to me that Mr. Edgar, the president of the Boston-Edison Company, pointed out the solution of that problem. He said. "I believe that we all should determine to find out what the correct prices are and sell on those prices, and the central station, if by its buying power and its volume of purchasing, makes more than a reasonable amount of money, it should devote that money to the general advertising of the industry in the community, for the benefit of everybody who is in the electrical industry."

It seemed to me that that was a very fine suggestion. And I don't see any reason why a development of that sort might not come about. I think it is being done in a small way, in many of the communities.

A great many people have said to me, "Why, you have got spread enough in this business, and if you will only get into your own organization and learn how to economize and learn how to do business intelligently, how to develop turnover as it is done by other merchants, you will find that you will have plenty of spread."

Now that might be all right. We might do all right on the spread, if it didn't seem necessary for the interests of everybody concerned, especially the public, to push this business at the present time very much harder than it is necessary, or even expedient, to push the ordinary merchandising business.

In this study of costs we have found some very interesting figures which I wish to give to you.

Cost of Merchandising

The average cost of a large number of merchandisers of all merchandising has been 36.6 percent. That is divided up in this way: The spread has been decidedly improved; it is considerably better than it was, the sales expense being 20.4 percent. That is the average in a large number of cases.

That isn't just simply offhand information. That is information gathered under a classification of accounts, which was studied out by men in this industry most able to develop such a classification, and the figures were carefully set up, not estimated but kept as the business was done under that classification.

Those figures may be too big. Perhaps we are spending more to sell than we ought to, but I still contend that the companies which are doing the most, and which in my judgment are facing their responsibilities to the greatest extent by distributing the most per capita of these appliances, are doing so under the greatest costs, made up of salaries, commissions for salesmen in stores, solicitors' commissions on straight sales, miscellaneous expenses, delivery department expenses, store administrations, rental of stores, window trimmings, cash discounts on sales, aggregating on the average, 20.4 percent.

And then comes the greatest surprise, in my judgment, in the business—the

clerical overhead. I think that we have underrated that. Here are the figures: Total clerical expenses, 5.3 percent; total general expense—that is the executive as well as clerical, in that branch of the business, 14.8 percent. You have got 20.4 percent for selling and 14.8 for clerical and administration and executive expense—those expenses in the house itself in keeping the books and the accounts, and collecting the money. And, mind you, we haven't got a penny in there for interest on capital. And that is a pleasant surprise, because we find that so much of this business is done on a deferred payment basis—and the charges which the people are perfectly willing and able to pay in order that they may enjoy these devices at all, many of them, and others in order that they may enjoy them immediately—are such that there is a slight credit back to the interest on the money, so that that only amounts on the volume to 1.4 percent.

Correct Turnover Not Figured

As to the turnover—it has been thrown in our faces that we have not studied turnovers; that we don't get turnovers. But in these days of high interest charges, when our capital charge is 1.4 percent it is the best evidence in the world that there is a very big turnover amounting to 1.4 percent of the sales. In other words, on a 6 percent basis it would be a four times turnover per year, which is not a bad merchandising turnover, even for the older merchandisers in household utilities, furniture, and those general lines of goods in which our devices would be classified.

Now I want to say just a word about the question of deferred payments.

I know I am rather radical in my views on that thing, but my study of the people who are doing business on the deferred payment basis in this country leads me to the conclusion that a greater volume of business is being done on that basis all the time, and that the hardest headed men in commercial life in this country are the ones who are indulging in it to the greatest extent.

I have had people, in one of the institutions of which I am the head, go and study the accounting methods of an institution which does a big furniture business in this country. If I gave you their slogan you would know it in a minute. That institution has six millions in accounts on its books. It shows a certain amount of losses in this method of doing business, but the losses are surprisingly small—something like 3 or 4 percent.

Just take the item of washing machines again—because that is the big thing that sticks up—I presume the Commonwealth Edison Company has merchandised in the time it has been in the business somewhere in the neighborhood of forty thousand of those machines. We have no record that we ever lost but one washing machine, which was actually stolen, carried away, and got away from us entirely. We have had any quantity of them come back on our hands, but the losses in doing that kind of business come from those who come in and say, "I am sorry, but my husband has lost his job, and we just can't keep up these payments at the present time. Now if you can help us along a little, until he gets located again, I haven't any doubt that we can keep it up, and I certainly do want to keep the machine, but if you must have your payments, you will have to come and get your machine." But that is a very small amount. Those are not our real losses.

Little Attention Given to Credit

We have discovered another thing, and it is very obvious. You take a thousand accounts where people agree to pay twelve or fourteen dollars a month, and take another thousand accounts where they agree to pay eight dollars a month, and I think you will agree that on the surface of things it certainly would seem that you would have a larger percent of losses with the people who were not able to keep up payments on twelve dollars a month than on the people who would not be able to keep up payments of eight dollars a month. That simply means one thing: If you sell your device on eighteen or twenty four months' time for payment, and give some reasonable attention to credit—and by the way some of the older people in the business and the cleverest people in the business give surprisingly little attention to the credit proposition, their experience being that it costs more to look up the credit and scrutinize it carefully, than the losses amount to—your losses are less than if you sell on twelve months' time.

Yes, but you say, "How about the finances?" The banking people of this country are coming forward with surprising rapidity, showing the greatest possible interest in financing this kind of paper for institutions who have any standing at all. They like it. And why? Because in the first place you have the chattel, as they say—the goods—you have the contracts of great numbers of wage earning people all over the country, that they will buy this stuff and pay a certain amount each week, or month, on it; you have the endorsement of your house, or mine, standing responsible for the collection of that money, and the payment of it, if it is not paid by the makers of the paper. And on top of that you have a thing that is absolutely liquid. If there is anything that a banker doesn't like it is a frozen loan. We have all been in positions where we have had a good sized loan with our banker, and we have had to go at the end of six months and ask him to carry it a little longer, and then a little longer, and perhaps some of them have carried it for several years.

—Courtesy P. A. Geier Co.

Here is an Excellent Window Trim in Which a Variety of Holiday Merchandise is Shown—Such Displays as This Are Easy to Arrange

That is a frozen loan. The banker doesn't like that, naturally, because of the possible risk. And more than that the bank examiners don't like it. It is not good banking.

Prices Must Pay Fair Return

But here is a class of security that is constantly turning over. Every time the bank examiner comes in a great volume of accounts have been paid off, to a great extent, and a great many of them have been paid off entirely, and there are new names on the list.

I am just giving you some of the things that have come to my attention in this business.

I think we have all got to study these figures, and have to stand together, and have the backbone to get prices that pay a fair return.

I am just as much in favor of low prices as anybody, but we haven't reached a point in this industry where we can afford to go on with these losses.

We have first got to get the business on a basis where we find careful, intelligent institutions, who do business well, and pay attention to their business, and who have not thrown away the alarm clock. They take the position that if they can't make money, the business isn't on the right basis.

We have all got to stand together and understand our business, if we are going to get it on that basis.

I have heard it said that we want more spread, and I think that is right. I am not asking you, the manufacturer, to do business at a loss. If you can't do business on a less price, raise your prices, or do as they do in the old merchandising lines, do away with your list prices entirely. But don't flood the country with advertisements of $6.75 for an iron, and then give so little discount that it can't be sold at the price that you advertise it for, and get out even, to say nothing of making any money on it.

The manufacturers have been paying more attention than any of us to this, and the situation has greatly improved. I see their difficulties and they are very grave. It is a very serious matter for them to cut prices below their costs, or worse, or raise prices which have been established for them by the standard of what their contemporaries will do, and also from the standpoint of the effect on the public mind.

But we have a situation that we have got to face fairly and squarely. In my judgment the first move to make is to find out what our costs are. We have got to do business on a basis that will give us a fair return. We have got to go after our costs. We have got to go after our turnover. We have got to coöperate all through the industry, and if we do this we will bring this thing through and make a wonderful business of it.

There is no reason on earth why every central station in this land should not be doing a bigger business in appliances, per annum, than its business in electricity amounts to, for every residence customer.

As the fellow says, I am in this thing clear up to my ankles. His friend says, "Well you are not in very far, are you?" And he replied, "You bet I am. When I go into a thing of this sort, I go in head first."

Discussion From Convention Floor

PRESIDENT STRONG: Gentlemen, I think you will admit that Mr. Gilchrist knows something about this subject, and doesn't hesitate to say in plain English what he thinks.

I am sure there must be some of you here who perhaps want to have some ideas cleared up on this very vital subject. In my estimation, this subject applies to the purchase of supplies for our contracting work, almost as much as it does to the merchandising end of our business.

The opportunity is now given, and I am sure that Mr. Gilchrist will be willing to answer any questions that any of you may wish to ask.

MR. J. A. FOWLER, Joseph A. Fowler Electric Co., Memphis, Tenn.: Mr. President, I want to ask a question, which is in the nature of a suggestion, and I would like to have Mr. Gilchrist give an opinion.

I have no doubt that the suggestion has been made before to the central station people, but perhaps it has not been thought of by some of us as a means of extending the distribution of appliances from the standpoint of the contractor-dealer.

The central station markets almost all of its appliances on deferred payments, as Mr. Gilchrist has brought out, and of course that is the best and easiest way to sell them. But the central station has a means of collecting, such as no contractor-dealer has the benefit of, in that it controls the current that the buyer uses with the appliance, and it can cut his current off if the buyer doesn't pay the bill monthly, as it falls due.

The contractor-dealer is confronted with a much more difficult credit proposition.

It has been suggested in some circles that since the central station wants to sell these appliances, and being primarily interested in the sale of them for various and obvious reasons beyond the profits that it provides—as Mr. Gilchrist brings out there is no profit anyway, and they must have some other reason for wanting to sell them—why not establish in our various localities, a method of collecting through the central stations for the contractor-dealer? In other words, the central stations will finance the deferred payments of the contractor-dealer, taking the cost out of such deferred payments, as its profit for handling the proposition.

Mr. Gilchrist points out that it bears a profit of 1.4 percent—I think he said—and if that is true, it ought to be attractive. If the contractor-dealer is financed along such lines as that, I think you will find him a much readier source of distribution than he now is.

I am asking that as a question—is it possible? And at the same time I am suggesting that I would like to have it considered by such men as Mr. Gilchrist, in the industry.

MR. GILCHRIST: I am very glad to say that that is an entirely practical suggestion. Of course I am not speaking for other central stations, but I believe that it is not too much to hope that some arrangement of that sort may be developed out of close cooperation between our people.

Of course the demands of the central stations for money make the contractor-dealer look—as the Englishman said—like a very small amount in American currency. They are after money all the time, and must be on account of their tremendous growth. But I believe that such arrangements are possible. However, you can only hope to make such an arrangement by getting together with the people who are distributing appliances in your territory, and ascertain their state of mind.

MR. R. H. JENKINS, Valley Electric Co., Terre Haute, Ind.: In regard to the gentleman's statement that the central stations can cut off the current if payments are not made on its appliances: They can't do that—they can't turn off the current for the non payment of a merchandise bill.

I will add also that I put on a house wiring proposition, and the central station financed it for me.

MR. GILCHRIST: I am glad the gentleman brought up that point. It would be a bold central station man indeed who would cut off a customer's electricity in order to collect a merchandise bill. He would certainly run into trouble so serious that he would never want to do it again. In fact, it is a matter of very great concern with the central stations of the country, lest some enthusiastic youngster may sometime take such a course.

MR. LEVY, New York Edison Company, New York City: That is exactly the point I wanted to bring out. The New York Edison Company does not disconnect any customers for not paying his merchandise bill. We could not legally enforce collection in that way.

MR. LOUIS KALISCHER, Louis Kalischer, Inc., Brooklyn: Mr. President, I am very glad that Mr. Fowler brought up the question that he raised. We have had several conferences with our central station, in the borough of Brooklyn, on that very same question. The necessity of meeting capital requirements was offered as an excuse for their going into that branch of the merchandising field.

I told the general sales agent of that company that I could secure all the money that the contractors would possibly need in the sale of all appliances, in addition to house wiring, with the biggest banking institution in Brooklyn, provided his company would bill and collect accounts. It resolved itself into a question of just how much the company would charge for that service. I have never gotten beyond that barrier.

There is no banking institution in the country that will not get behind and furnish all the money necessary, provided the central station company doesn't exact too much as a collection charge.

MR. EARL E. WHITEHORNE, *Electrical World*, New York City: Mr. President, it seems to me that it is extremely gratifying that this gathering has had the opportunity to listen to such a message from a man who stands out so prominently among the central station people upon the question of merchandising.

Unquestionably our industry is turning toward a better understanding between the different elements—organized and unorganized—which are possible to this whole merchandising situation.

I listened the other day to Mr. S. M. Kennedy, vice president of the Southern California Edison Company, talking about the merchandising situation in Los Angeles. That com-

pany was one of the first and most enthusiastic advocates of the sale of appliances by central stations, and away back in 1906 it actually gave away about twenty five thousand flatirons. But they recognized that it was a mistaken policy, and later on went out of the merchandising business entirely. This year they are connecting something like forty thousand new residences and commercial customers, and there is no one sufficiently organized in the city of Los Angeles to really develop that market.

It shows that there is a need such as Mr. Gilchrist indicated here today for a leading influence in the community. That function has got to be supplied by the central station, because there is pioneering work still to be done, and Mr. Gilchrist and other central station men who are guiding the affairs of this industry, are beginning to recognize the fact that there must be a profit to all concerned; there must be a policy which recognizes that fact. That that policy is being recognized, is extremely encouraging, and I think we can all congratulate ourselves, and Mr. Gilchrist, on having been given the opportunity to listen to this talk this morning.

MR. F. J. SAYLOR, Eureka Vacuum Cleaner Co., Philadelphia; Mr. President, I was naturally very much interested in Mr. Gilchrist's talk, and particularly in the figures that he quoted with reference to the losses made.

That brings up the question as to why the central station, or anyone else in the appliance business should continue in that business at a loss.

I believe it is possible to conduct an appliance business at a profit. I believe further that the central stations with their facilities as Mr. Gilchrist has brought out, can do a bigger business on a more profitable basis than anyone else can, due to the reputation which they have in the community, and the facilities which they have for going to the customers, having you might say a hundred percent perfect list of people whom they can reach through either their bills or an addressograph. If they, with the facilities that they have, cannot make a success of it, and make money in selling appliances, who can do it? If they cannot do it, there must be some serious reason why they can't. I think that this is the fundamental principle that we must study in the appliance business—to find out where that reason is and why it exists.

That was one of the reasons why I came down here, to find out whether someone knew how to evolve some method which would eliminate the terrible loss that is being experienced now.

You can readily appreciate the fact that a contractor certainly cannot make any money if the central station cannot. Whether it is the spread between the manufacturer's cost and the retail price, or what it is I don't know, but I would certainly like to know what the reason is.

MR. GILCHRIST: I am very glad indeed that the gentleman from Philadelphia brought out that point, because there is one statement that I overlooked, which I should have made from the platform.

I want to make it very clear that one of the principles laid down by the Merchandising Policy Committee of the N. E. L. A. was that this business should be conducted and the accounts should be kept, on a basis such as would prevail if the business was an entirely independent business from the contracting business, or central station business.

As a matter of fact these companies probably have all made some money. They haven't made an adequate amount of money, but they have made some money. The reason they have made some money is because they have kept their merchandising accounts in the same accounting department in which they kept their central station accounts, and their transportation and delivery of goods has been done by the same transportation department that they had in connection with their central station. This was an economical proposition for both of them.

Some of the central stations have actually lost money.

Those who have given the most thought to the matter and are more and more coming to the view that the central station, from the standpoint of its own best interest, must do business on a basis where an independent concern can compete with it in prices, and still make a profit.

MR. SAYLOR: One of the points that I wanted to bring out is the fact that the overhead figures that were used in this particular case, or the case of a number of companies, are exactly the same overhead figures that you men have in your business. Those of you who are in the appliance business alone, naturally cannot operate at a profit if the central station cannot, while using the same overhead that you must have.

Mr. Gilchrist suggested that if you would proportion the overhead more of the companies would show a slight profit. But there is nothing in your appliance business that you can proportion your overhead on. So that the average overhead that he claims for a number of these companies, is not out of proportion to what the overhead is in a contracting and appliance business.

It doesn't help the contractor-dealer, nor the appliance distributor to have conditions existing as they are now.

MR. GEORGE T. BARROWS, Barrows Electric Shop, Inc., Pittsburgh: Mr. President, not long ago this thing came up in one of our cities, about a bigger discount to the dealer, and I was fortunate enough to sit in with the manufacturer of a washing machine we were handling, and he said, "Well, we can't give you fellows any bigger discounts." The jobber also was sitting in the conference. The thing came up in a discussion as to the difference between the dealer who hires salesmen, and the dealer who sells off of the floor. This manufacturer said that in such national distribution as they had, covering the country, they had a number of dealers who did hire salesmen, and a number who did not, and it was hard for them to make a difference in the discount to the different dealers.. "But," he said, " as soon as I give a fellow, say forty percent and he depends on that when he sells the appliance off the floor, right away he feels that he is at liberty to give fifteen, or ten, or twenty off his price, in order to make a sale. That puts the man who is paying fifteen or twenty percent to a salesman at quite a disadvantage."

It seems to me that we are always going to be at that disadvantage unless we can find some way of making our distribution to the consumer at a standard price, and also find some way to arrive at a fair price between those two fellows—not putting them out of business, but having them come up to a standard where they can get a price for the appliance sold off of the floor, as well as on appliances sold through salesmen.

MR. JOSEPH A. LIBBON, New York: Mr. President, I think that the fundamental reason why the average appliance dealer has not made a profit is because it costs too much to sell an appliance. By costing too much I mean the cost of it goes into the intensive selling effort.

Even the central stations, with all their prestige and the advantage of stores situated in what we might call the better suburban districts, cannot sell appliances unless they put out a force of canvassers in the field.

I don't know to whom the duty belongs—whether it is the central station or the manufacturer, to do the pioneering. But one thing I do know is that the average dealer cannot afford to do the pioneering. He must get immediate returns, because most of them operate on a very limited capital.

We have not arrived at the stage in the game of selling electrical appliances where a woman will walk into a store and say, "I want such and such a washing machine"; or "I want such and such a vacuum cleaner." They have got to be trained in that line. The washing machine and the vacuum cleaner has not become a staple as yet.

The average dealer who doesn't put out canvassers, doesn't sell appliances. If a man pays a certain rent for a certain store, that store is supposed to have certain advantages which attract trade, but I know from experience, and dealers in New York and other cities know that locations on the best and most popular thoroughfares don't bring the business.

You have got to go out after customers. You have got to put out machines on demonstration, and a lot of them come back, and I think the job to be done is to make the merchandising of electrical appliances a business of staples, and when that has been done, your margin as it is today in my opinion is big enough.

MR. KALISCHER: Mr. President, I have had some experience in the merchandising of electrical appliances, but at the present time I am primarily an electrical contractor in the sense that we make money in our business and are not tied up with a branch that usually sustains a loss.

Mr. President, I would move you that this entire matter be turned over to the Trade Policy Committee for further investigation, and in that way we may be able to get various angles of the proposition from different sections of the country, with the idea that we may form them altogether into at least a guiding line for the benefit of the Association of Electragists—International. The motion was seconded, and prevailed.

Telling It to Mr. Builder

The writer of the bulletin issued by the Electric League of Dayton, Ohio, is a self assertive sort of fellow. When he wants a thing he usually gets it. Accordingly when he went after the builder who had agreed to build him a house it did our electragist hearts good to see the specifications he demanded. Here they are:

Say, build me a house that's right, old man,
The kind you build to please.
A house that's wired and fully attired
For things conducive to ease.

You know what I mean by right, old man,
Chockfull of electrical stuff,
An outlet here and an outlet there,
Great guns! There can't be enough.

Put plenty in every room, old man,
Don't miss an important space,
Put three of 'em here and six over there,
Just scatter 'em every place.

Don't speak of original cost, old man,
Say, how do you get that way?
Delete if you wish, but not from this dish,
The outlets are going to stay.

I want this house for a home, old man,
An electric home clear through.
It's been my dream—my one pet scheme,
And nothing else will do.

So chop the cost if you must, old man,
But touch not a single light,
And chop not a chip from the outlet slip,
This house must be built right.

Chats on the National Electrical Code

By HUBERT S. WYNKOOP, M. E.

Monthly Discussion of National Electrical Code Practices by Well Known Authority in Charge of Electrical Inspection, City of New York

Wiring on All Metal Basis

I am glad to note that the electragists at the last annual convention of the International Association turned down the proposed prohibition of all wiring methods except the all metal ones. It has been my contention that many locations existed, even in the heart of a city, where open wiring on knobs offered the most satisfactory type of construction, particularly certain mills or loft buildings.

Dead Switch Blades

My October Chat on dead switch blades has brought forth the following comment from a prominent manufacturer of panelboards:

> In my estimation Mr. Wynkoop is right in his contention that manufacturers should as far as possible construct their panels so that the switch blades are dead when open, and we have endeavored to follow this rule. In fact we cannot recollect that we have lately built any panels where the branch switches have not been so arranged that the blades are dead when open; but we as well as our competitors are still furnishing panelboards with main switches at the bottom, in which case the blades will be alive with the switch in the open position.
>
> Our catalog now in preparation, however, shows all main switches at the top of the panel, in which case the blades are dead when open; but I am afraid that for some time to come we will still build panelboards with knife switches at the bottom especially of heavy capacity, where it will be undesirable to run the main lead, which generally enters at the bottom of the cabinet, through the gutter to the top of the panel.

This is better than I expected. The claim has been made in other quarters, that since the fuse should be killed by the opening of the branch circuit switch, reversing the switch to make the blades dead when open would throw the open switch back over the fuse, preventing the removal of the latter; so that a larger panel would become necessary, if this difficulty is to be avoided.

I agree that it is not "practicable" to place the main switches at the top of the panel where large risers are used. And I do not see just how the switch at the bottom could be wired to give dead, open switch blades, without introducing undesirable complications.

A. E. S. C. to Approve Code

Chairman Dana Pierce has perfected arrangements looking toward the submission of the 1923 edition of the Code to the American Engineering Standards Committee for adoption. As a preliminary to adoption, a sectional committee approved by the A. E. S. C. must report favorably to the National Fire Protection Association, the sponsor for the Code.

System Grounding Wire

I learned recently that an inspection department was successfully requesting a system grounding wire. The only point I have in mentioning this is to convey a mild warning against *requiring* a system grounding wire. Section 902d seems to cover the situation very clearly.

Fuses Plus Circuit Breakers

The following statement by a recognized authority on motor circuits is of general interest:

> There is no rule in the National Electrical Code which definitely states that fuses must be used in addition to circuit breakers for the protection of motor circuits. In the last edition of the National Electrical Code there was such a rule. I will refer you to rule 8c, paragraph 2. In the 1923 edition of the Code we intended to increase the number of situations where the circuit breaker protection only would be required for motor circuits. As you mention, there are four conditions where the fuses are not required. By inference, fuses would be required under all other conditions.

The four conditions are given in Section 809c.

Disconnecting Switches

There has been much discussion recently over these switches. As I mentioned in the November Chats, such a switch is not intended to open under load, but merely provides a convenient means of opening an already dead circuit. Such a condition is found where the controlling switch is to be located out of sight of a motor and provision must be made to insure the maintenance man that current cannot be thrown on without his knowledge while he is working about the motor. Or the disconnecting switch might be desired to precede an autotransformer starter, so that the latter might be killed for cleaning, etc., without shutting down a whole group of starters.

The present discussion centers about the possibility of using the disconnecting switch as a circuit opening switch in case of emergency. Some contend that it should operate successfully as a circuit switch in an emergency, in which case it must be just as rugged as a standard switch and loses all classification as a mere disconnector. Others say that no consideration whatever should be given to any emergency opening under load, as such operation obviously is not a permissible factor in judging the device. I am beginning to believe that the latter view is the correct one.

But even then, it's up to the inspection department to say where a disconnecting switch may or may not be used.

Revision of Inspection Fees

The new branch circuit rule (807) which takes the place of the old 660 watt rule (No. 23d) is charged with another sin. How about the fee schedules? The present fees were generally based upon a "16 c. p. lamp or equivalent" or upon a "50 watt lamp or equivalent." Now, as Hans Breitmann would say, "der vats is all gon avay in der evigkeit." So now we shall have to consider whether to charge for "a branch circuit or fraction thereof", or for an "outlet". Other bases for charging may be found. The editor of THE ELECTRAGIST will welcome copies of the new schedule as fast as they are adopted. It will be interesting and educational to see how the problem is solved in different localities.

A Cord Pendant = a Fixture

I presume that we are all agreed in describing a "fixture" as a means of supporting a lamp holder (as our British cousins term a socket). The support may be a pipe of any kind, or a chain, or—a flexible cord? And why, then, is not a flexible cord so used a part of a fixture?

The pipe or chain is supported by a crowfoot, or a hickey or an insulating joint; but the flexible cord is held up by an outlet box or a rosette. And why then is not a rosette a part of a fixture, being a combination of a support and a canopy?

Error in Section 503-O

In the next to the last line the words "gutter of the" should be inserted before the word "cabinet". The 1920 Code so reads, and no change was authorized.

The Field of Industrial Motor Power

By S. F. Ricketts

Vice President of Western Elevator & Motor Company, Winnipeg, Presented This Subject Before a Special Contractor-Dealer Meeting in That City

The polyphase squirrel cage induction motor consists of a two or three phase winding in the outer frame called the stator, ranging from two pole 3600 R. P. M., with 60 cycle current to twelve pole 514 R. P. M. machines. The rotor winding, or construction, consists of low resistance bars acting as a secondary of a transformer, each bar being brought across the magnetic field out to end rings, which rings short circuit these secondary bars. Rotor construction varies from the straight soldered in bar, to the end ring that is rivetted and soldered, slotted end rings with bars let in and brazed, welded, and the solid cast bar and end rings.

Ventilation and heat distribution in a motor is an important factor; hence the decision of standard manufacturers to build nothing but 40° motors. This test rating is based on continuous full load causing not more than 40° centigrade rise above the surrounding atmosphere, which increases to 55° centigrade with 25 percent overload. This is considered the maximum allowable temperature where 50° used to be the standard of certain manufacturers, but which is now accepted only for intermittant operation. As the 20 H. P. 50° motor of a certain speed is built in the frame of a 15 H. P. 40° motor of the same speed, it can readily be seen that it is undesirable competition where these factors are unknown to the purchaser.

Elevator Service

The high resistance rotor motor as used on elevator service has bars of a different alloy than the ordinary copper bar of induction motors, is strictly an intermittant duty machine, and has a different full load speed. It gives high torque with low starting current and the acceleration is slower.

The slip ring wound rotor induction motor is especially suitable for heavy starting conditions, such as centrifugal pumps where the load increases rapidly as the speed comes up. For starting duty this motor introduces resistance into the rotor circuit by bringing out the wound rotor connections to slip rings on the shaft, through a controller and a variable resistance. This resistance is cut out gradually and the rotor slip rings are short circuited when the motor is up to speed. It then runs as a straight squirrel cage low resistance induction motor. With a water rheostat this motor can be placed on the line very slowly and lightly as to starting current.

The internal start or automatic polyphase motor, of which there are several makes, is a combination of the high resistance and low resistance squirrel cage rotor, combined with the mechanical short circuiting device common to certain single phase motors. The rotor has a double winding laid in each slot. One winding is a simple squirrel cage built up of high resistance alloy bars, which is the starting winding when the current is switched on to the stator, which is of standard polyphase construction.

Careful Operation Necessary

This high resistance rotor, drawing low current and having high torque, brings the motor nearly up to full speed. The second winding is made up of simple loops, each end brought out to commutator bars without brushes. The commutator is open circuited at low speeds, but when the motor has increased up to a certain percentage the governor weights cause the commutator bars to become short circuited, where upon the rotor runs as a straight squirrel cage motor. It is thus a simple mechanical adaptation of old principles.

The ordinary induction motor, if switched straight on to the line, has a starting current varying up to 800 percent of full load current, hence it is necessary to employ voltage reducing transformers, or compensators, on sizes over 5 H. P. to keep down the corresponding line current fluctuations. As the torque, however, varies as the square of the voltage this low starting voltage bring the starting effort down in a very much greater proportion than the actual drop in voltage indicates. Under certain heavy starting load conditions you cannot use the ordinary induction motor without a mechanical clutch.

There is room for considerable discussion as to types designs, first cost, and maintainance, but it would take too long to detail at this time.

Synchronous motors come into use more and more as the power companies have reason to lighten up on low power factor. They are higher in first cost; need some control in field current according to the load and the percentage of power factor correction required; and are only used in larger factories or mills, or by the power companies themselves, to correct the result of badly loaded induction motors and transformers. They are low in torque and should be used on steady loads.

Current Cost Saving

Synchronous motors run by-a factory that is penalized for low power factor, such as occurs in Western Ontario under the Hydro Power Commission, effects a great saving in current cost. More attention is given to this factor by the power companies when their lines get heavily loaded with wattless and thereby unremunerative current.

The single phase motor is an important item in Winnipeg, being required under city bylaws for all single installations under 7½ H. P.

Single phase motors are in two classes, V13, the split phase type, and the repulsion induction motor. The split phase motor employs a starting winding in advance of the running winding, and an automatic switch to cut out the starting winding as soon as it is up to speed. It draws a large starting current and is therefore not usually built over ¼ H. P. or ½ H. P. It also has a low starting effort and is therefore of no use for starting under load.

The repulsion induction motor design has characteristics that give the motor a high starting torque when the brushes are down, with low starting current. This torque is equal to from 250 to 350 percent of full load torque. Whilst the windings are much the same with each make of motor, the details of brush design, brush lifting device, short circuiting commutator segments in the internal commutator are all important, and practically govern the life of the motor.

Motor troubles give rise to immense possibilities of discussion. There are troubles that result from inherent design—although few in these days—troubles from overload, faulty fusing and many other conditions.

With the polyphase motor it often

happens that the blowing of one fuse, whilst the other two lines are overfused, causes the motor to run single phase. This produces excessive heating, and if the motor stalls in this condition it will quickly roast out. The remedy is to install overload time limit relays with the compensator instead of fuses.

Very little rotor trouble is found nowadays with the modern rotor construction, as occurred with the old soldered bar construction.

Most of the stator trouble arises from surplus oil on windings, drying out of insulation from overload heating, dampness and mechanical injury. Short circuits and grounds in the stator usually come from one of the mentioned causes. It pays a motor user to have his motors taken out periodically, thoroughly dried in the oven, treated and rebaked. It would add life to his plant if this was done, and it should be part of our educational plan.

Phase reversal outside on lines have had very unfortunate results. Polyphase elevator motors have to be guarded against this especially, and are equipped with phase reversal relays.

Air Gap Clearance

Clearance in the air gap works both ways. Some makes claim high efficiency with fine air gaps, to find later that it is better to sacrifice a little efficiency for continuity of service. Slight wear on bearings, with the consequent drop in rotor on to the stator, will cause trouble quicker with small air gaps than with wider ones.

If bearings are cleaned out regularly, a good grade of oil used, covers are put back tightly on to oil wells and there is not an excessively tight belt, together with a well designed oil system a liberal width of bearing, there should actually be no wear, as there is a perpetual film of oil between shaft and bearing.

An unbalanced line on a polyphase circuit will produce heating in a motor and lead to trouble.

Induction motors should be run as near full load as possible to secure good power factor and efficiency.

Single phase troubles are mainly commutator, brush wear, or internal short circuiting segment pitting. Single phase motors should not be used in excessively damp places, although it is wonderful how many of them stand up in laundries locally.

In briefly reviewing the output of power plants, the field of operation, the types of motors and the correction of faults, it should certainly be a matter for reinspiration when we consider together the potential possibilities of Winnipeg as a great manufacturing and power using centre, each doing his part to make the electrical industry worth while for our having been called to serve in it.

Distributing Overhead in Motor Repair Work—II

By GEORGE P. SVENDSEN

President of Boustead Electric & Manufacturing Company, Minneapolis, Presents Valuable Solutions to Peculiar Problems

[NOTE:—This is the second article by Mr. Svendsen on this important subject. The first one appeared on page 31 of the November number, and there is to be a third installment. Electragists should read each article carefully and file them all for future reference.—The Editor.]

The preceding article of this series gave some idea of the complicated problem confronting the electrical repair shop in the matter of determining a proper billing amount for any particular job, and it is with a little hesitancy that the following solution is offered, as no one method can possibly fit all the variables involved. Briefly the proposed method is as follows:

First: All material is divided into two general classes. Class I will include what might be called raw or semi finished material, such as rough castings, magnet wire, insulating materials, paints, varnishes, screws, bolts, certain repair parts, etc., in fact, any material that will require labor of some sort before being turned over to the customer. Class II will include all other material which is usually sold as separate items requiring no labor, such as motors, pulleys, controllers, fuses, lamps, certain motor parts, etc. Practically all Class II material will have a more or less fixed selling price usually determined by the manufacturers or local market conditions.

If a posting scheme is used on job tickets, the two classes of material should be posted separately, lumping Class I material, and itemizing Class II material. If a job envelope scheme is used, these two classes can be separated at billing time. In addition to posting the material as outlined, a notation should be made of the number of transactions involved with Class I material.

Second: All labor should be posted as to cost and number of hours and the totals of each secured.

Third: Any direct job expense items, such as traveling expenses, transportation charges paid on incoming jobs or other similar items, should be listed separately.

The average repair job will consist of labor and Class I material, with possibly some Class II material, and direct job expense. With the totals of these items available as outlined above, we would bill the job as follows:

To the total *cost of labor*, we would add a *fixed amount per hour* for the total time in hours. To the total cost of all Class I material we would add a flat or sliding percentage of this cost and in addition a *fixed sum per item*. The final sum of these various amounts would be the billing price to the customer on the repair job proper to be billed in a *lump sum not itemized*. Any Class II material furnished would be itemized and billed at prevailing market prices. Direct job expense items are usually small and usually represent an accommodation payment made for the customer, to be billed at cost without profit, such as traveling expenses and transportation charges.

In addition to the above, some provision should be made to include an extra or special charge for any operations involving extensive use of elaborate labor saving equipment.

So much for the outline of our plan. Let us next see how we can determine the fixed amounts and percentages to be used.

For simplicity we will take round numbers for all our values and will assume a business doing $70,000 worth of repair work, and in addition selling $30,000 worth of Class II material, or a

total of $100,000 in sales for the year. Without going into too much detail and omitting direct job expense, we will assume the records give us the following main figures for the year's business:

	Class I Material and Repair Sales	Class II Material Sales
Cost of Class I Material	$15,000	
Cost of Class II Material		$24,000.
Cost of Productive Labor, less all deductions transferred to expense	18,000	
Expense or burden chargeable direct to shop	16,000	
Expense or burden chargeable direct to stock room	2,500	1,000.
Expense or burden chargeto general overhead	11,500	3,500.
Net Profit	7,000	1,500.
Total Sales	$70,000	$30,000

The fact should be emphasized that the figures taken are entirely arbitrary and are to be used simply as a means of showing how to arrive at our rate numbers and percentages.

On our Class II material we have shown a gross profit of 20 percent, which in actual practice will vary considerably, depending upon the relative amount of miscellaneous supplies, used apparatus and new apparatus. While the gross profit obtainable on supplies and used apparatus will average high, the profit on new apparatus especially in the larger machines will run low. Whether these sales show a net profit or not will depend upon the amount of stock room and general expense charged to them, and the determination of this amount will require some careful study and analysis.

That the sale of small discount apparatus can show some profit is evidenced by the good income made by many manufacturers' agents who sell apparatus on small percentage commissions. The actual amount of gross profit per sale and the investment involved are points to be considered as well as the percentage of gross profit. Even with small discounts, a large motor may show more gross profit on a single sale than hundreds of small supply sales, and in addition with proper handling will require no investment whatever.

This balancing of gross profit with the amount of individual sales, rate of turnover and actual direct sales expense including after sale service, should be given more attention than it has had in the past.

Next we will consider the building up of our labor and Class I material billing prices. Taking our previous figures we have:

	Labor	Class I Material
Cost	$18,000	$15,000.
Direct Burden	16,000	2,500.
Shop Cost	34,000	17,500.
General Overhead and Profit.	12,200	6,300.
Sales	$46,200	$23,800.

The general overhead and profit items of $12,200 and $6,300 are derived from the total repair sales. General overhead of $11,500 and the total repair sales profit of $7,000 together equal $18,500. This is divided proportionately to $34,000 and $17,500, the two respective shop cost amounts giving the values shown.

Now our $18,000 represents a payroll of approximately 30,000 hours as obtained from the payroll records. Therefore the average billing rate is $46,200 divided by 30,000, of $1.54 per hour. Since the average cost is $0.60 per hour, then our billing price per hour to be added to cost per hour is $1.54 minus $0.60 or $0.94 per hour. On this basis, 30c per hour labor would bill out at 30c plus 94c or $1.24 per hour. $.90 labor at 90c plus 94c equals $1.84.

LABOR		MATERIAL		
6 hrs. @ .40	$ 2.40	3 items totaling		$6.45
4 hrs. @ .70	2.80	1 "	"	.42
20 hrs. @ .85	17.00	3 "	"	.55
		1 "	"	.10
		1 "	"	.03
		2 "	"	1.60
Total, 30 hrs.	$22.20	11 "	"	$9.15

Right here it might be well to emphasize the fact that the hourly rate obtained for different repair shops may vary considerably, depending upon the amount of labor saving equipment used and class of help employed.

		OR		
Labor Cost	$22.20		Labor Cost	$22.20
30 hours @ $0.94	28.20		30 hours @ $1.00	30.00
Material Cost	9.15		Material Cost	9.15
42% of Material Cost	3.84		100% of Material Cost	9.15
Item Chg. 11 @ .10	1.10		Item Charge	1.10
Billing Price	$64.49		Retail	$71.60
			Less 10%	7.16
			Large user or Resale	$64.44

Analyzing our Class 1 material, we find the $6,300 represents 42 percent of the cost of $15,000. We will assume that an analysis of our stock room records shows between 25 and 30 requisition slips per day with an average of 3 kinds of items of materials per slip. In round numbers this gives about 25,000 items per year of 300 working days. The direct cost is $2,500 or $0.10 per item.

Building up from our costs, we get our same selling prices as before as follows:

Labor		Class I Material	
Cost	$18,000	Cost	$15,000.
30,000 hr. @ 94c	28,200	42% of cost	6,300.
		25,000 items @ 10c	2,500.
Sales	$46,200		$23,800.

With the average repair job, it will be found that the material will usually consist of many different items each of small value in itself, with only an occasional job where material will be used in big bulk. Therefore it would work out much better if instead of a fixed percentage as shown here with our 42 percent, we would use a sliding scale increasing this markup on the average small amounts and decreasing on the larger amounts. This would require careful study of Class I material movements through the stock room in order to get a sliding scale that would balance out in the final totals. For example we might have a markup of 100 percent on the little dabs of material where the waste and handling cost is high, and taper down to 30 percent to 40 percent on extra large items.

In actual practice both our labor rate per hour and markup percentage would be taken in larger round numbers to give a net retail price, which would be subject to discount to large users and to the trade. As an example take a sample job as follows:

For example one shop may use practically no machinery and another shop may have a balanced combination of machines and men, while still a third shop may be over supplied with equipment.

The hourly charge worked out as outlined in this article would be lowest for the first shop and highest for the last shop and still the bill for a given job might run about the same. On the other hand, the second shop might have the lowest billing price on the same job owing to the well balanced relation between machine and hand work.

In my third and last article of this series we will analyze our method and see how it tends to equalize our billing, and automatically smooth out the irregularities ordinarily found in billing systems for the electrical motor repair shop. *(To be continued.)*

Lighting Industrial Plants Electrically

By H. W. Desaix

Survey of Various Buildings in Silk Manufacturing Field Shows Startling Needs for Adequate Installations and Proper Equipment

[NOTE: Mr. Desaix is an official of the Watson-Flagg Engineering Company, Paterson, N. J., and he presented this subject as a paper before a regular meeting of the Illuminating Engineering Society in that city. It may be gathered from the survey that practically no silk mill can operate without the use of artificial light, and as this holds true in the case of other industrial plants the electric lighting suggestions here given should help electragists to put more of this valuable business on their books.—The Editor.]

During the early months of this year a survey was made of various silk manufacturing plants for the purpose of obtaining data for the better lighting of plants in this industry. This survey was later supplemented by experimental installations from which tests and further observations were made, eventually leading up to some very gratifying results.

As the idea seems to suggest itself, this presentation is in the nature of a report of this investigation. Time, however, will not permit of detailed data being given for each step in the process of manufacturing silk fabrics, but what appear to be the most important will be dealt with.

An inspection revealed most of the plants using pendant drop cords, hung about two feet over the working plane of looms and a trifle higher over accessory machines. In some instances bare 50 and 60 watt Mazda lamps were in use; but in the majority, tin cone or flat shaped painted reflectors were in use. This latter system seems to be the conventional means of lighting silk weaving plants.

In some weaving plants drop cords were in use, being even with the bottom of the arch of the loom using bowl type, enameled steel reflectors, with 50 and 60 watt type B Mazda lamps, and in some instances mill type lamps. This latter system is unquestionably an improvement over those mentioned above. It has its faults, however, being expensive in comparison to the result obtained; lamps do not as a rule burn their natural life, due to constant handling, striking of reflectors against loom arch; and because of theft. There is also a tendency on the part of operators to install larger lamps in the sockets, with the well known resultant glare. Another fault of the local lighting system for weaving, and in fact other processes, is eye strain of operators due to the constant change of looking into comparative darkness as compared with the light on the warp.

Illuminating engineers heretofore have recommended a general lighting system to supplement the local to overcome the last objection and to provide proper lighting for aisles. This has always seemed to the mill executives a duplication of system and extra avoidable expense; very often it resulted in an unpopular lighting engineer.

On the other hand, general lighting

H. W. Desaix

systems in weave sheds have been attempted but have proven unsatisfactory because objectionable shadows were cast by loom arches, and an insufficient amount of light in between the heddles at which point ends must at times be picked up and passed through.

Proper Illumination Needed

Conferences with mill executives, weaving foremen, and operators themselves led to the opinion that if a system of illumination could be worked out that would incorporate the advantages of the concentrated result of the improved local system, and the further advantages of the usual general system at a reasonable cost of installation and upkeep consistent with the desired result, it would fill a long felt want and at once become popular. With this idea in mind experiments and tests were started.

For the purpose, a room was used containing 24 plain broad silk looms, arranged in 4 rows across, a wide aisle in center, with 6 looms to a row. The room was typical of most that are used for the purpose, the ceiling was of open wood beam construction, with walls and ceilings painted white, except for a distance of 4 feet up from the floor where the walls were painted light grey. It was located on the ground floor necessitating the use of artificial light all day.

The lighting system in use was the customary drop cord with tin cone shaped painted reflectors and 50 watt mill type Mazda lamps. Test showed this system as delivering an average of 11 ft. candles on the warp, but with the undesirable effects outlined above.

In order to be satisfied that previous opinions were well founded a general system was next installed employing R L M dome steel enameled reflectors, with 200 watt type C bowl enameled Mazda lamps, spaced on centers over each loom station or weaver's alley. This spacing meant 13 feet 3 inches between units along the rows and 7 feet across, and 10 feet between rows on each side of center aisle. Mounting height 12 feet from floor or approximately 9 feet above working plane. Uniform average intensity of 10 feet candles was secured.

From general appearances this system seemed to be quite satisfactory. It certainly eliminated all the objections of the local system; but while sufficient light was delivered for general purposes there was not enough to see to pass ends through the heddles in the harness. Shadows were encountered from the loom arches and by the operators when leaning over the work. This system also failed to provide an upward component to enable the transmission equipment, such as shafting, hangers and pulleys, to be adjusted.

An analysis was then made of the above systems, the obstacles to be overcome, and the nature of the work done in a weaving plant. From this it was concluded that the system desired must contain the following factors:

Varied intensity of illumination, with a higher intensity on the looms as compared with drives and aisles.

Adequate intensity for all purposes.

Freedom from objectionable shadows.
Freedom from glare, both direct and by contrast.
Must provide sufficient light on walls with a well distributed upward component, in order to have interior of room give a bright, cheerful appearance.
The cost of installation and upkeep must be reasonable in comparison to result, and must pay a return on the investment.

Usually the required intensity is known, but in this case the value in use did not appear sufficient, making it necessary to work the reverse of regular practice; i. e. effect to cause.

After a thorough study of the various types of luminaries the market afforded, one was selected. This unit consisted of a rugged prismatic glass reflector 11 7-8 inches in diameter and 5 7-8 inches in height, open top and bottom. The distribution curve showed it to be of the intensive type, with sharp cut off at 60 degrees, from the verticle, falling away sharply after 15 degrees. Supported by a three prong holder, designed on the ice tong principle which grips the lower flange of the reflector. An adjustable stem is provided with marked calibrations for 75, 100, 150 and 200 watt lamps; it made an ideal unit for the purpose of the test.

These units were hung on the same spacings and mounting heights as were the R L M reflectors used in the previous experiment.

With 200 watt type C clear Mazda lamps, readings were taken of 30 ft. candles, on the warp tapering to 15 ft. candles in the aisles and on the drives, which satisfied the first requirement of varied intensity or spilled light.

The amount of light was entirely sufficient; in fact, at first was considered too high, but later experiments disproved this. Entering ends through harness could be done with ease and plenty of light. Arch and operators shadows were not at all objectionable because of high intensity.

With practically the entire ceiling moderately illuminated glare by contrast was not encountered as the tunnel like appearance was illuminated; and transmission equipment could be oiled and adjusted easily. This excellent upward component is very desirable for the sake of its cheerful appearance, especially where women are employed, as in this industry.

Because the light cut off occurs at 60 degrees direct glare was practically nil.

Quite naturally, certain objections were raised, such as the possibility of glass breakage, but this was not considered serious, because the units were hung at a height from the floor which removed them from the sphere of activity and being of rugged construction would require a hard blow to cause breakage.

Another objection was the collection of dirt or dust, but it was pointed out that if dust did collect on top to any extent the condition could not be any different from that of an opaque reflector. The fact that dirt might collect would have a tendency to induce shorter periods between cleanings. Being designed with reflecting prisms, dirt or dust does not impair reflecting efficiency unless mixed with oil as the oil excludes the air film which normally prevents optical contact. In fact, dust and dirt is something which should not exist to any great extent in a silk weaving plant.

Satisfactory Analysis

The results obtained were well worth the effort expended, as it was the unanimous opinioh that a system of illumination had been worked out that fulfilled all the necessary requirements of silk weaving. Later this system was installed in the entire plant which made it possible to determine costs. It was found that the cost of installation, using a modern conduit wiring system with convenient switching arrangement equalled one half a cent per foot candle per square foot.

When winding, the broken ends are detected by the stopping of the swifts, and in quilling are detected by the raising of the guides, making it very easy to detect broken ends or spent spools from any position in the aisle. For these operations R L M dome steel reflectors with 200 watt Mazda C lamps spaced on 12 foot centers hung 12 feet high will give a general illumination of about 8 ft. candles. An intensity sufficiently high for ordinary purposes.

It has been found advisable in some instances when a higher intensity is required for which the same equipment is recommended as for weaving, spaced at a distance not to exceed mounting height, which will deliver a general intensity of 12 ft. candles and also provide a more cheerful room appearance.

In warping rooms where horizontal warpers are employed, a recommended system is to treat each warper as an individual unit using the spilled lighting principle. This requires the same type of luminaire as suggested earlier for weaving. These should be spaced, one over the creel ,one over the reed, and one over the beam, centered in all cases with the width of the machine, and use 200 watt, type C Mazda lamp. One of the factors to consider in warping is that work is done both in a horizontal and vertical plane. The system suggested will furnish a sufficient intensity of illumination to both surfaces and spill sufficient light on aisles and driving gear. Intensities should be about 30 ft. candles on the work and taper off gradually.

If Swiss warpers are installed in the same room with horizontal warpers the same system may be employed for uniform appearance, but where they are set up in a separate part of the mill, it has been found more satisfactory to use two units of an extensive type reflector with the same size lamps, due to the more compact form of this type of warper. The creel is smaller, the reed wider, and the mill itself not over three yards in circumference, practically eliminating

The Application of Spilled Lighting in an Installation that Entailed Special Requirements

vertical working plans. Intensity for Swiss warping should be 02 to 15 ft. candles.

The throwing branch of the industry is one requiring very careful consideration when planning the lighting system. Most throwing plants run twenty four hours per day, which means that the night shift works entirely under artificial illumination.

High intensities are not so necessary because of the nature of the process, as it is a comparatively simple matter to detect broken ends or empty spools. Excellent results have been obtained by using a general system of illumination employing R L M steel dome reflectors with 200 watt bowl enameled lamps spaced 16 to 18 ft. centers and hung 12 to 14 ft. from the floor. This will provide about 4 or 5 ft. candles. Higher intensities, which are advisable, are secured by placing two units in each alley, between machines hung 12 ft. from floor, using R L M steel dome reflectors and 200 watt bowl enameled Mazda lamps, giving an intensity of approximately 10 ft. candles.

If glass reflectors are used a pleasing upward component, adding to the appearance of the room making it more cheerful, is provided. It should not be forgotten in any event to provide properly diffused illumination for the entire room including all aisles in order to relieve eye strain.

Requirements for Specific Work

Another branch of the silk industry that presents quite a problem for the illuminating engineer is the dye house. On the basis of a recent investigation a system was here installed.

Because of the humid atmosphere existing in buildings where dyeing is done vapor proof enclosing globes should be used to protect lamp base and socket parts from corrosion. Ordinary vapor proof globes give the same light distribution as bare lamps and do not protect against glare from excessively bright lamp filaments.

For this reason a prismatic glass vapor proof reflector globe, designed to screw into a cast iron or lead alloy holder containing lamp socket, was used with 150 watt type C clear Mazda lamp.

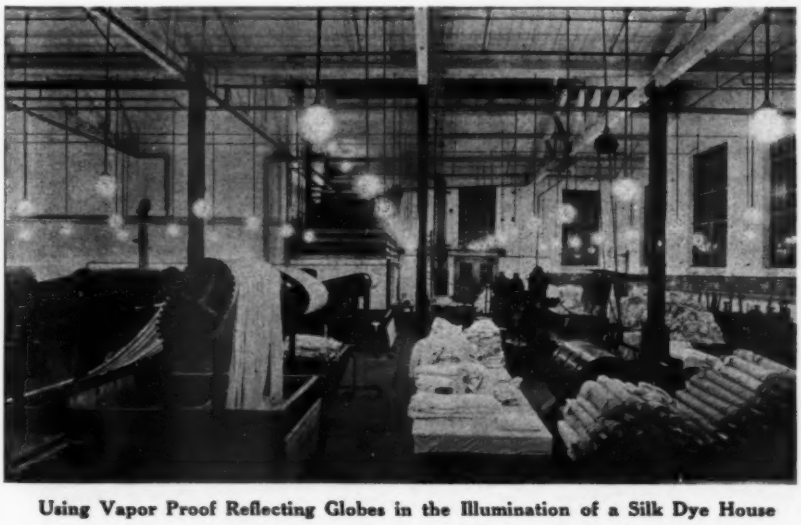
The distribution produced by this unit has the maximum candle power at 55 degrees from the vertical, which provided a uniform intensity on both verticle and horizontal surfaces—a necessary factor. A sharp light cut off at 60 degrees eliminates objectionable glare.

Units were spaced in bays 10x10 feet and mounted 10 ft. from the floor resulting in a uniform initial intensity of 12 ft. candles.

An important point in dyeing is the proper matching of colors. Customers usually send a sample of color wanted or specify shade from the standard color card. For this purpose a small room should be provided so constructed that north skylight will be available. At times when this is not to be obtained or in dark hours, the best substitute is a unit producing artificial daylight, consisting of a heavy gauge copper hood with a one piece pot glass filter with the color in the glass. Applied color will fade. Regular incandescent lamps are used which are usually supplied with the unit to insure proper size and type.

Other phases of the silk industry deserve consideration, such as ribbon weaving and Jacquard broad silk weaving, but the machinery in these branches differs widely in various plants, especially with ribbon weaving and it might be suggested to treat each problem as it presents itself; although it might be said that it is almost impossible to use anything else but a well designed local system for either of these branches, except in a very few cases.

It might be said that practically no silk plants can operate without the use of artificial light, and when compared with the amount of money represented by the raw and finished material handled in the course of only one year, the cost of the best possible lighting system is very negligible.



Using Vapor Proof Reflecting Globes in the Illumination of a Silk Dye House

Electrical Simplification

More than 1,000 outstanding opportunities for the elimination of economic waste through the simplification of varieties and sizes of products were presented in the first analysis of findings in the survey of simplification opportunities which has been carried on during recent months by the American Engineering Standards Committee at the request of Secretary Hoover of the Department of Commerce.

This is in the form of a summary of answers to a questionnaire sent out by the American Society of Mechanical Engineers, one of the member bodies of the A. E. S. C., to selected lists of its membership which includes all members of its professional division. The survey shows 123 suggestions of important standardization opportunities in the automotive and aircraft industries; 115 opportunities in building material industries; 54 opportunities among electrical appliances and supplies; 291 opportunities in tools and other machine shop equipment; 64 opportunities in paper, catalogs, books, and printing; 200 opportunities in boilers, valves, pumps, pipe supplies and kindred products; 37 opportunities in the railroad field, and 191 opportunities in miscellaneous industries.

Among the materials, simplification of which was suggested in the answers to the questionnaire, were the following in the electrical industry: Attachment plugs, diaphragms on radio head sets, lighting fixtures, wiring fittings, panelboards and switches, fuses, motors, motor bases and frames, sockets, vacuum cleaners, transformer oil, washing machines, and insulated wires.

DO YOU include the Code of Practice as a part of your bid? It saves misunderstandings.

ORGANIZATION ACTIVITIES

STATE CHAIRMEN AND SECRETARIES

State	Chairman	Secretary
Ontario, Canada:	Harry G. Hicks, 203 Church St., Toronto	J. A. McKay, 24 Adelaide St., W., Toronto
British Columbia:	S. E. Jarvis, 570 Richards St., Vancouver	R. A. Graham, 929 Pender Street, W.
Colorado:	J. Fischer, 213 15th St., Denver	H. Alex Hibbard, E. & C. Building, Denver
Connecticut:	Tryon Smith, 247 State St., New London	
District of Col.:	Frank T. Shull, Elliott St., Washington	H. R. Harper, 635 D St., N.W., Washingt'n
Indiana:	T. F. Hatfield, 102 S. Meridian St., Indiana's	A. I. Clifford, 507 Odd F. Bldg., Indianapo's
Iowa:	Louis L. Corry, 510 Brady St., Davenport	
Kansas:	C. S. Smallwood, 1017 N. 5th St., Kansas City	Arthur Tucker, 619 Jackson St., Topeka
Louisiana:	Robley S. Stearnes, 624 Carondelet St., N. Orleans	I. G. Marks, 406 Mar. Bk. B., N. Orleans
Maryland:	A. C. Brueckmann, Keyser Bldg., Baltimore	C. Philip Pitt, 7 St. Paul St., Baltimore
Michigan:	Henry Roseberry, 41 Pearl St., Grand Rapids	H. J. Shaw, 613 Lincoln Bldg., Detroit
Missouri:	A. J. Dunbar, Frisco Bldg., St. Louis.	G. E. Haarhaus, St. Louis
New Jersey:	Geo. E. Davis, 23 Central Ave., Newark	
New York:	F. A. Mott, 29 St. Paul St., Rochester	H. F. Janick, 29 St. Paul St., Rochester
Ohio:	C. L. Wall, 212 S. Main St., Akron	Walter R. Keefer, 939 E. McMillan St., Cin'nati
Pennsylvania:	R. W. Keck, Allentown	M. G. Sellers 1518 Sansom St., Philadelphia
Tennessee:	P. W. Curtis, Chattanooga	J. A. Fowler, 10 S. Second St., Memphis
Wisconsin:	L. G. Ross, 1305 Tower Ave., Superior	H. M. Northrup, 25 Erie St., Milwaukee

LIST OF LOCAL ASSOCIATIONS AND MEETINGS

STATE AND CITY	LOCAL SECRETARY	STREET ADDRESS	TIME OF MEETING	PLACE OF MEETING
ALABAMA				
Birmingham	J. R. Wilcox	313 North 19th St.	Tuesday 10 a. m.	----------
Mobile	Frank Sigler	Sigler Electric Co.	Wednesday 5 p. m.	Members' Offices
ARIZONA				
Phoenix	E. A. Cummings,	----------	Tuesday 4 p. m.	Builders Exchange
CALIFORNIA				
Anaheim	Mr. Waite	----------	Each Week, Friday	----------
Berkley	J. M. Gregory	Oakland	Friday 8 p. m.	Oakland
Covina	F. Rambo	----------	1st & 3rd Monday	Ontario
Fresno	Clyde F. Smith	1162 Broadway	Tuesday Evening	Comm. Club
Long Beach	A. H. Rosenburg	So. Cal. Electric Co.	----------	Municipal Club
Los Angeles	Irvin C. Bruss	118 East 3rd St.	----------	----------
Oakland	J. Gregory	Pacific Building	Tuesday 8 p. m.	Pacific Building
San Francisco	A. Elpins	165 Jessie St.	12 Noon, Thursday	States' Cafe
South Pasadena	J. Jacobs	1128 Mission Street	----------	Cham. Com. Bldg.
Van Nuys	Los Angeles Ass'n.	----------	Tuesday 6:30 p. m.	Pin Ton Cafe
COLORADO				
Denver	Alex. Hibbard	E. & C. Building	2d & 3rd Tuesdays	E. & C. Building
Manitou	----------	----------	Friday Nights	Col. Springs
Pueblo	H. Ashcraft	----------	2nd Tuesday	Commerce Club
CONNECTICUT				
Hartford	Mr. Cook	Hart & Hegeman	1st Wednesday	Hartford
New Britain	F. Mulvehill	----------	----------	----------
Waterbury	D. B. Neth	Conn. Light & Power Co.	2d Tuesday Evening	Builders Exchange
DISTRICT OF COLUMBIA				
Washington	----------	----------	2d Thursday	Dewey Hotel
FLORIDA				
Jacksonville	M. A. Ladd	Stinson Electric Co.	1st Tuesday	108 W. Bay Street
Miami	C. E. Pullen	Pullen-Zohl Co.	----------	----------
GEORGIA				
Atlanta	W. C. Drake	Ga. Ry. & Power Co.	12:30 Friday	Dafodil Res.
Savannah	Sylvan M. Byck	141 Bull Street	----------	----------
ILLINOIS				
Chicago	J. W. Collins	179 W. Washington St.	2nd & 4th Wednesdays	Lumbermen's Exchange
Master Contrs. Ass'n.	F. J. Boyle	31 West Lake St.	----------	----------
Decatur	E. O. Weatherford	114 E. William St.	1st Wednesday	Y. M. C. A.
Springfield	C. A. Meadow	107 E. Adams St.	----------	----------
East St. Louis	C. F. Broderick	317 E. Broadway	Saturday 2 p. m.	Arcade Building
La Salle	Edward Blaine	----------	1st & 2nd Tuesday	Post Hall
Quincy	John• Harbison	18th & Broadway	2d & 4th Wednesday	214½ No. 6th Street
Rock Island	John Weishar	----------	Monthly	----------
Streator	William Schroder	613 Tyler Street	----------	----------
INDIANA				
Evansville	I. A. Welburn	404 Main Street	Every Friday	Y. M. C. A.
Gary	A. B. Harris	570 Washington St.	----------	----------
Indianapolis	E. V. Knight	307 N. Penn. St.	Every Thursday	Hotel Lincoln
Peru	J. B. Johnston	West 5th Street	2d & 4th Monday	Labor Hall
South Bend	Mr. Moran, Jr.	832 N. St. Louis	1st Tuesday	B. & T. Ex. Building
Warsaw	L. F. Meyers	120 E. Market St.	Wednesday Evening	----------
IOWA				
Davenport	Louis F. Cory	----------	Monday 6 p. m.	Chamber Com.
Sioux City	F. H. Abbott	----------	Monday 6 p. m.	Jackson Hotel
Waterloo	H. L. Hileman	600 Bluff Street	----------	----------
KANSAS				
Salina	Geo. H. Shanks	146 So. Santa Fe St.	1st Thursday	----------
Topeka	H. S. Lee	816 Kansas Ave.	Monday Noon	Elks' Club
Wichita	L. A. Harris	446 North Main	Every Tuesday 7:30	United Elec. Co.
KENTUCKY				
Louisville	Chas. Daubert	921 S. Third St.	2d, 4th Thursdays	B. of T. Building
Paducah	W. R. Kitterjohn	----------	Last Thursday	----------
LOUISIANA				
New Orleans	Frank Gacheck	406 Marine Bank Bldg.	2 p. m. Monday	406 Marine Bank Bldg.
Shreveport	Percy Elliott	Elliott Elec. Co.	Every Monday	----------
MAINE				
Portland	Lyman P. Cook	12 Free Street	On Call	Graymore Hotel
MARYLAND				
Baltimore	George Robertson	----------	Bi-monthly	Soathem Hall
MASSACHUSETTS				
Fitchburg	R. M. Gowell	----------	1st Monday	Fay Club
Haverhill	H. W. Porter	24 West St.	2nd Monday	El. Light Station
Springfield	Mr. Ayers	103 Rochelle St.	----------	Chamber of Comm.
West Medford	H. J. Walton	Malden Elec. Co.	Monthly	Various
Worcester	J. W. Coghlin	259 Main St.	2d Thursday	44 Front Street
MICHIGAN				
Battle Creek	----------	----------	Every other Tusday	Post Tavern
Detroit	H. Shaw	613 Lincoln Building	Last Thursday	G. A. R. Hall
Flint	J. Markle	718 S. Saginaw	----------	----------
Grand Rapids	Henry Romyn	40 Ionia Av., N. W.	Tuesday Noon	Association of Com.
Kalamazoo	M. Randall	Exchange Place	----------	Chamber Commerce
Saginaw	E. T. Eastman	209 Brewer Arc.	----------	----------

ORGANIZATION ACTIVITIES—(Continued.)

STATE AND CITY:	LOCAL SECRETARY	STREET ADDRESS	TIME OF MEETING	PLACE OF MEETING
MINNESOTA				
Duluth	D. Ehlert	210 W. 1st St.	Subject to Call	----------
Minneapolis	W. I. Gray	511 S. Third St.	2d & 4th Monday	Builders' Exchange
St. Paul	E. Hoseth	993 Selby Avenue	2d & 4th Tuesday	Elk's Club
MISSOURI			6:30 p. m.	
Kansas City	R. L. Hutton	212 Admiral Boulevard	2d Tuesday	University Club
St. Louis	E. Bowman	644 Century Building	1st Wednesday	American Hotel
NEBRASKA				
Lincoln	G. G. Kingham	142 S. 12th Street	1st & 3rd Monday	C. of C. Building
Omaha	E. H. Brown	1818 Harvey St.	2d and 4th Thursdays	Builders' Exchange
NEW HAMPSHIRE				
Portsmouth	F. C. Hatch	Kittery	2d & 4th Wednesdays	----------
NEW JERSEY				
Atlantic City	F. P. Wright	16 Ohio Ave.	1st Thursday	Malatesta Hotel
Jersey City	Wm. Doellner	843 Bergen Ave.	----------	P. S. Building
Long Branch	Chas. Maggs	462 Bath Ave.	1st & 3rd Mondays	Commercial Hotel
Newark	George E. Davis	23 Central Ave.	1st Monday	23 Central Ave.
Paterson	H. M. Desaix	88 Ellison St.	Last Friday	P. S. Building
NEW YORK				
Albany	E. A. Stephens	71 Trinity Place	3rd Thursday	Pekin Restaurant
Binghamton	A. H. Hyle	----------	----------	----------
Brooklyn	H. F. Walcott	Pacific St. and 3d Ave.	1st & 3rd Wednesdays	Johnston Building
Electric Club	A. Stone	503 Myrtle Ave.	----------	----------
Buffalo	E. P. McCormick	55 Washington Street	Fridays	507 Elec. Building
Cooperstown	B. B. St. John	Oneonta	3rd Tuesday	Vanon
Endicott	A. H. Hyle	Binghamton	Tuesdays	Chamber Commerce
Glens Falls	W. F. Coombs	21 Main Street, S.	----------	----------
Jamestown	Henry Lund	309 Main Street	3rd Monday	Manufacturers Ass'n.
Kingston	M. C. Rivenberg	----------	----------	----------
Nassau-Suffolk	Edwin M. Seaman	Mineola	----------	----------
New Brighton	E. L. Taylor	Tottenville	----------	----------
N. Y. Section, No. 1	J. W. Hooley	45 Barclay Street	1st Thursday	Building Trades
Independent	A. Lincoln Bush	906 Sixth Ave.	2nd and 4th Wednesdays	226 W. 58th St.
Section No. 3	L. F. Luedecke	----------	----------	----------
Olean	H. C. Thuerk	Olean L. & P. Co.	Monthly	Various Stores
Oneonta	B. B. St. John	----------	3rd Thursday	----------
Rochester	H. F. Janick	29 St. Paul Street	1st and 4th Mondays	Eggleston Hotel
Saratoga Springs	W. F. Camp	So. Glen Falls	2d and 4th Thursdays	Saratoga and Glens Falls
Schenectady	Mr. Spengler	McClellan St.	Subject to Call	----------
Syracuse	H. N. Smith	P. O. Box 809	1st and 3rd Mondays	----------
Tottenville	W. Taylor	Tottenville, S. I.	1st and 3rd Thursdays	St. George, S. I.
Troy	H. W. Boudey	First Street	1st Tuesday	Gas Office
Utica	W. C. Ballda	228 Genesee Street	1st Tuesday	Elks' Club
Watertown	L. B. Smith	Roth Block	3rd Fridays	Utilities Building
Woodmere	Geo. La Salle	Westbury	----------	----------
Yonkers	Mr. Mayer	Manor House Sq.	Monthly	----------
OHIO				
Akron	Harvey Uhl	211 Water Street	Alternate Thursdays	2nd Nat. Bank Bldg.
Bellaire	J. Blumberg	Bellaire	Call of Secretary	Bellaire
Canton	H. S. Hastings	Industrial Corporation	1st Tuesdays	Industrial Com.
Cincinnati	W. R. Keefer	939 E. McMillan	Tuesday 3 p. m.	Chamber of Com.
Cleveland	Frank Monahan	1761 East 12th Street	1st and 3rd Thursdays	Hotel Statler
Columbus	O. A. Robins	1517 Franklin Ave.	Every Thursday	Girls Athletic Club
Dayton	Clarence Carey	1107 Bron Ave.	2d & 4th Mondays	Builders' Exchange
Springfield	M. H. Gray	----------	On Call	Various
Steubenville	D. C. Hartford	----------	1st Wednesday	Nat. Exchange Bank
Toledo	J. Kelly	16 Huron Bldg.	Every Wednesday 8 p. m.	16 Huron Building
Youngstown	F. F. McBride	Builders' Exchange	Monday Noon	Y. M. C. A.
OREGON				
Medford	S. C. Clark	Cal. Ore & Power Co.	3rd Monday	----------
PENNSYLVANIA				
Allentown	A. W. Hill	Bethlehem	Last Thursday	----------
Bethlehem	A. H. Hill	510 W. Main Street	----------	----------
Catasauqua	W. T. Kleppinger	----------	Last Thursday	----------
Dubois	C. E. Blakeslee	----------	Monthly	----------
Easton	G. E. Hill	Bethlehem	Monthly	----------
Erie	Earl Stokes	Builders' Exchange	----------	----------
Lancaster	A. Deen	434 S. Sheppen	3rd Friday	Builders' Exchange
Philadelphia	M. G. Sellers	1518 Sansom St.	2nd Thursday	Underwriters Office
Pittsburgh	Fred Rebels	4th Avenue	1st Thursday	1518 Samson St.
Scranton	A. J. Fowler	Board of Trade Bldg.	Tuesdays	4th Avenue
St. Marys	C. E. Blakeslee	Dubois	Mondays	Zenke's
Wilkes-Barre	Ambrose Saricks	Penn. Pr. & Lt. Co.	Tuesday Evenings	----------
York	A. E. Harris	E. King Street	2d & 4th Tuesdays	Penn. Pr. and Lt. Co.
RHODE ISLAND				----------
Providence	Herbert C. Hill	35 Westminster Street	1st Thursdays	----------
SOUTH CAROLINA				
Charleston	J. P. Connolly	Elec. Contr.-Dealer Assn.	----------	----------
Columbia	E. L. Cashion	Sumter, S. C.	----------	----------
Greenville	E. C. DeBruhl	Ideal Electric	----------	----------
TENNESSEE			Wednesday	----------
Chattanooga	Carl Schnider	412 Kirby Avenue	Noons	Manhattan Cafe
Knoxville	H. M. Moses	615 Market Street	Monthly	Railway Light Co.
Memphis	H. A. Street	285 Madison Av.	Every other Wednesday	Allyn Cafe
Nashville	J. Shannon	8 Ave. and Church	----------	Tribune Hotel
TEXAS				
Dallas	H. A. Brewster	409 S. Eway	On Call	409 So. Eway
El Paso	R. S. Murray	1515 No. Campbell	Ev. Tuesday	303 Martin Building
UTAH				
Salt Lake City	Gus. Forsberg	69 E. 4th South	Wednesday 12:15 p. m.	Newhouse Hotel
VIRGINIA				
Lynchburg	W. M. Elliott	Lynchburg	1st Wednesday	Local Stores
Norfolk	K. D. Briggs	Arcade Building	Wednesdays	Old Colonial Club
Richmond	W. A. Cutlett	Jefferson and Grace Sts.	----------	----------
WASHINGTON				
Seattle	Rush McCarger	3rd and Madison St.	Thursdays	Elk's Club
WISCONSIN				
Green Bay	John B. Tingley	223 Cherry St.	1st Thursday	Nicolet Building
Milwaukee	E. H. Herzberg	156 5th Street	1st Monday each Month	456 Broadway
Racine	F. H. Patrick	1545 W. Boulevard	1st Tuesday	Racine Building
CANADA				
Calgary	E. W. Beard	----------	Bi-weekly	----------
Guelph	W. E. Lemon	The Gringer Co.	2d and 4th Monday	Christie Elec. Co.
Hamilton	K. J. Donoghue	c|o N. Electric Co.	----------	----------
Kitchener	O. S. Leyes	c|o Doerr El. Co.	----------	----------
Montreal	G. C. L. Brassart	65 McGill College Ave.	----------	----------
Ottawa	A. C. McDonald	128 Osgoode St.	Monday 8:00 p. m.	Elec. Inspection Office
St. Catherine	A. J. Desand	Electric Shop	1st and 3rd Wednesday	Chamber Commerce
Toronto	J. A. McKay	24 Adelaide St.	2nd Tuesday	Board of Trade
Vancouver	J. F. Hutchinson	2427 Granville St.	Every Tuesday	425 Pacific Building
Windsor	A. H. Cook	609 Moy Ave.	----------	----------
Winnipeg	R. N. Elgar	General Elec. Co.	2d and 4th Thursdays	Notre Dame Building
Niagara Peninsular	W. H. Mackenzie	609 Moy Ave., W.	----------	----------

Successful Southern Tour

A. E. I. Officials Visited Seven Cities in Southern Division Last Month

Carrying out the Association of Electragists' plan for promoting divisional and sectional meetings throughout the country, President James R. Strong and General Manager Laurence W. Davis visited seven cities of the south during the two weeks of November 5 to 17. This trip completed travels of more than 12,000 miles taken by these officials of the Association this year in bringing the work of the Association closer to the membership throughout the entire country.

The first stop on the trip was made at Atlanta, Georgia, to attend the semi-annual convention of the Georgia Electrical Association on November 7. This meeting was attended by over one hundred men from all branches of the industry and electragists were present from all the principal cities of the state.

The convention was held at the beautiful East Lake Country Club in Atlanta, and included besides a splendid program of business subjects in the morning, and a banquet in the evening, the enjoyable feature of a hard fought kicker's handicap golf tournament in the afternoon on the sporty East Lake course.

The convention was presided over by J. E. Mellett, president of the Georgia Electrical Association, and besides President Strong and General Manager Davis on the program, addresses were made by W. R. C. Smith, president of *Electrical South*, A. L. Atkinson of the General Electric Company, and Samuel G. Hibben, manager of the Illumination Bureau, Westinghouse Lamp Company.

The Georgia Electrical Association which was formed two years ago, has brought together electrical interests of that state more thoroughly than ever before, and this convention represented the fine spirit of coöperation which the Association has developed.

The A. E. I. officials spent only part of a day in Birmingham, Alabama, but the electragists of that city had laid out a program which crowded into those few hours a whirlwind auto trip around that beautiful city, a luncheon at the Tutwiler Hotel attended by representatives of all branches of the electrical industry, and an afternoon session at which over twenty five electrical contractor-dealers listened to the A. E. I. officials tell of Association work and the possibilities for improving business through coöperation.

The next stop on the trip was a two day visit in New Orleans, the first day, Friday, November 9, being devoted entirely to conferences and business sessions, while the next day gave the visitors an opportunity to personally call on members of the Association and to see something of that always interesting city.

The official program opened with a luncheon on Friday noon, given by the Electrical Contractors & Dealers of New Orleans, and included besides the local men several representatives from other Louisiana and Mississippi cities.

The afternoon was devoted to talks by President Strong and Mr. Davis on the practical accomplishments of the Association's work, the Manual of Estimating, the Eidlitz Plan as developed in New York City, and other problems of special interest to the contractors.

The evening banquet held at Kolb's restaurant was given under the auspices of the New Orleans Electrical League, and was presided over by President Clements of that organization. Following the speakers of the evening, the first showing in that city of the electrical film, At Your Service, was made to the gathering and won much applause for its artistic presentation of the part electricity plays in serving the public.

The story of the New Orleans visit would be incomplete without mention of the wonderful hospitality of the ever genial Col. Robley S. Stearnes, who not only thought of every want of the travelers during their stay, but also entertained them at his home on Saturday evening with a never to be forgotten dinner of southern dishes prepared by his renowned cook.

Col. Stearnes accompanied President Strong and Secretary Davis to Memphis for the convention there on Monday, November 12, of the Tennessee Association of Electragists. O. C. Small, promotion manager of the Society for Electrical Development, also joined the travelers at this city. The twelfth annual meeting of the Tennessee Association was attended by over one hundred men from all ports of the state and a very fine program of educational features was provided.

E. R. Wright of Memphis, president of the Tennessee Association, presided over the meetings, which were held in the Hotel Gayoso. The morning session was devoted largely to special business and reports, and was followed by a get together luncheon at noon given by the Memphis Electric League. The afternoon session included instructive talks on estimating, installation problems, illumination, coöperative market building, etc. The convention closed with a banquet in the evening at which President Strong was the principal speaker.

The meetings in St. Louis on Tuesday, November 13, were held under the joint auspices of the St. Louis Electrical Board of Trade and the contractor-dealers of that city. At noon President Strong was speaker of the day at the regular weekly luncheon of the Electrical Board of Trade at the Statler Hotel and addressed the nearly two hundred men gathered there on the subject: The Contractor and His Relation to the Industry.

Following the luncheon a special session of electragists was held at which particular problems affecting their business were discussed by President Strong and Mr. Davis. The contractors followed with close attention the explanations of the Manual of Estimating and the Eidlitz Plan, and an interesting discussion followed as to the practical ways and means of uniting all of the contractor-dealer interests of St. Louis solidly in one body.

In the evening a banquet was given to the visitors at the City Club at which over two hundred men were present. O. C. Small of the S. E. D. gave the address of the evening on the possibilities of development work, and was followed with close attention.

On Wednesday, November 14, Messrs. Strong and Davis were guests of the electrical men of Louisville. A very unique and enjoyable luncheon was given in the quarters of the Ohio Valley Electric Company, one of the finely coöperating jobbers of the south, and over fifty men were present as guests of this company.

The meeting was held under the auspices of the Electrical Clearing House, this organization of Louisville corresponding to the Electrical Leagues or Boards of Trade of other cities. Following the talks of the A. E. I. officials, a very interesting discussion developed regarding the possibilities of reaching all classes of electrical contractors through the combined efforts of the industry to the end that better service might be given the public and better competitive conditions be developed within the industry. A special committee was provided to make a study of the situation and develop a plan for bringing all interests together.

The visit of the A. E. I. officials to Indianapolis was made the occasion of a state wide convention of Indiana elec-

trical contractors and dealers. The attendance represented men from all parts of the state and was one of the best get together meetings held in the state in the last two years.

The convention opened with a luncheon at the Hotel Lincoln, and was followed by an afternoon session of business and addresses. Mr. Davis gave his illustrated talk on Estimating and Selling the Job and President Strong told of the work of the International Association in solving national and international problems, not only through the work of committees and departments of the A. E. I., but through the close coöperation of that Association with the other national associations representing central stations, manufacturers, jobbers and underwriters in the industry.

Thomas F. Hatfield was chairman of the meeting, and other speakers on the program included A. I. Clifford, whose untiring efforts in the past few years as secretary of the Indiana Association have been responsible for holding together the contractor-dealers of Indiana. Mr. Clifford made a special appeal for a reorganization of the Indiana State Association, and the development of it along strong and constructive lines.

From Indianapolis the officials visited West Baden Springs, where it is planned to hold the 1924 annual convention. They were very much pleased with the hotel and surroundings and announcement will soon be made giving the general plans. The date of the annual convention has been changed to the week of September 29.

The World is Small

A story that was missed in the running report of the annual convention last month has just come to light. It concerns the affable songster and cheer leader, J. J. Caddigan, efficient aid to W. H. Atkins, superintendent of the Edison Electric Illuminating Company of Boston.

It seems that while down at Mt. Vernon with the crowd, Mrs. Caddigan became separated from her husband. Jack was hurrying along the broad veranda of the old Washington mansion, like a dutiful husband in search of his wife, when somebody else's wife stopped him.

"Excuse me," she said, "but aren't you Mr. Caddigan?"

"Surest thing you know," Mr. Caddigan quickly came back.

"Well, when I came down from Washington to attend this electragist outing, my daughter said to be sure to look for Mr. J. J. Caddigan, as his wife was a school chum and she wants to meet her again."

"That's my name," said Jack, "and I'm just looking for my wife now. We live in Dorchester, and we have a neighbor by the same name, and may be it's him you're looking for," said J. J., trying to explain to himself how his wife had a schoolmate that he never had heard of before.

And sure enough, quick witted Jack had solved the mystery. It was another man by the same name whose wife was a school friend of the woman's daughter. Mr. Caddigan says the world is too small, and that there are too many Caddigans in it, anyhow. But his friends say that if all who bear that name are as good fellows as Jack, the world would be far niftier with more of them.

Denver Electric Home

After private showings to architects, realtors and civic clubs, that second official electric home of the Electrical Coöperative League of Denver was formally opened to the public on Sunday, November 18. This home was exhibited for a week with daily exhibition hours from three in the afternoon to nine o'clock in the evening.

The Denver League's second home was a modest bungalow type and comprised five rooms finished basement and a garage. It was of Colonial design and especially attractive because of the use of tapestry brick set in black mortar and a roof of burgundy tile shaded with red.

In the neighborhood of thirty five appliances furnished by the jobber and distributor members of the League were displayed during the exhibition. The wiring consisted of 78 outlets, as follows: 21 convenience outlets—flush type; 25 switch outlets; and 32 lighting —10 bracket and 22 ceiling. This included six sets of 3 way switches.

New York Board Work

Recent mailings by the Electrical Board of Trade of New York City are planned to acquaint the public with the use of electricity and the value of high grade work. It is hoped in this way not only to promote business volume for electrical interests but develop an appreciation for the best electrical service possible.

The public is told that electric wiring work installed by unlicensed men is not only illegal but is likely to lead to serious trouble of many kinds, and is a detriment to property values tending to increase insurance and other upkeep costs. "Proper electrical service is due you," reads a communication, "and can be had provided the materials used are correct and right in quality and the installation work is done by a licensed contractor in accordance with the New York City laws governing electrical work."

It is stated that the Board is at the service of the public to aid them in every way to secure the efficient service, the economic use, and the comfort, convenience, and pleasure that electric service can and does give the user when conditions are right, work properly done and the materials used are suited to the service expected from it.

A communication to the members explains the opening of a service department which is now ready to coöperate with the members of the Board, along the following lines: Department of Water Supply, Gas and Electricity, New York Board of Fire Underwriters, Suburban Board of Fire Underwriters, public service companies, and credits and collections.

Members are urged to send in complaints relative to the holding up of jobs through non inspection, or by the holding up of the certificate which it is felt confident is being done without real and sufficient reason. Complaints, it is said, in regard to the boards of Fire Underwriters, or matters requiring attending or adjustment with the lighting companies in the metropolitan area, will be taken care of promptly.

Boosts A. E. I. Work

Boston Edison Advises Contractor-Dealers of Convention Activities

As further evidence of the success of the last annual convention of the Association of Electragists at Washington, D. C., the following communication is printed from W. H. Atkins, general superintendent of the Edison Electric Illuminating Company of Boston, to the electrical contractor-dealers in the territory served by that central station.

The communication sent out by Mr. Atkins reads as follows:

The matter of a better goodwill and coöperation between the electrical contractor and the central station has been one in which I have had the greatest interest for many years, and doubtless you know of the effort this company has been making to develop a closer coöperation with the contractors in the territory in which it operates.

I have been interested also to know from time to time just what the contrac-

tors themselves were doing among themselves, and in 1921 I wrote you my impressions of the convention held by the National Association of Electrical Contractors and Dealers in Buffalo, which I attended.

In October of this year, I had the pleasure of attending the convention of the Association of Electragists, held at the new Washington Hotel, Washington, D. C., and I could not let the opportunity pass without telling you just how the convention impressed me. There were in attendance several hundred contractors and contractor-dealers from all parts of the United States; the meetings were very well attended; and one of the things that impressed me most was the seriousness with which those in attendance outlined their ideas and suggestions for the betterment of the electrical contractor in general.

Many very fine ideas for business getting and business methods were brought out at the meetings; and the strongest impression I received while there was that if this organization continues the work it is now doing, it will be of the greatest help to the electrical contractors and dealers in the territory in which this company operates, should they take part in its activities.

The convention to my mind was one of the most successful I have ever attended and being one of the very few central station men present, I can frankly say that I was amply repaid by my visit.

I am sending you under separate cover, through the Electragists' Association, a copy of their magazine which contains many of the ideas and thoughts that were recorded during the convention. This magazine will also give you a description of a series of electric shows that this company is putting on in its various communities in an effort to assist the local contractors in these communities not only to make a market for their goods but to create a better good feeling between the contractor and this company.

Our Own Who's Who

Late Editor of Electrical Record in New Field of Endeavor

The subject of this sketch, Mister Frank Ellis Watts, first saw the light of day around Warren, Ohio. Being a bright youngster, he absorbed sufficient knowledge to enable him to become the district school teacher at an early age. Soon tiring of educational pursuits, he

Portrait of Mr. Watts From an Old Daguerreotype Taken in 1846

turned his face eastward, landing in Hoboken about the year 1846. It being only a ferry's ride, he went over to New York City, where he met J. P. Hall and Al DeVeau, who are still active in electrical doings. These gentlemen observed in our hero the makings of a fine little leader of the Sons of Jove. As the high muckamuck of that organization, he hit the highway until he had learned to call every man in the electrical industry by his first name, which he still does. Seeing the need of straightening out the export situation, Mr. Watts took a fall out of that hazardous game, which laid him up for repairs temporarily. Having had experience in trade paper advertising, he naturally got the idea that he could edit. Customarily the advertising salesman develops into a porch climber or some such kindred spirit, but Watts reformed and became an editor. He chose the editorial sanctum of the *Electrical Record* for his literary endeavors, and look at it now. To paraphrase the old song: He made it what it is today, we hope he's satisfied. He did seem to be at least contented until Charlie Beardsley of the Apex Electrical Distributing Company came along and told him about the ropex atterex layout. Frank fell. He dropped his editorial toga and jumped into his selling togs. Now he's in Cleveland, Ohio, increasing the business of the Apex people to a point where production facilities must be enlarged to meet the demands.

Given a Farewell Dinner

When it was learned that Frank Watts was to leave New York City, his friends in the electrical industry tendered him a farewell dinner at the New York Athletic Club. This was held on Tuesday night, October 30, and was called Frank Watts Night. Commissioner Charles L. Eidlitz of the Electrical Board of Trade was toastmaster, and after calling upon representatives of the various branches of the industry for short talks, he presented Frank with an umbrella and a cane, engraved with the good wishes of his friends.

Mr. Watts removed to Cleveland with his family on November 2, and immediately took up his new duties with The Apex Electrical Distributing Company of that city.

S. B. Williams, who has been managing editor of the *Electrical Record* suc-

Showing the Electrical Friends and Business Associates of Mr. Watts Who Attended the Farewell Dinner in His Honor

ceeds Mr. Watts as editor, and J. C. Prior takes the place of associate editor with Mr. Williams. Mr. Prior has long been connected with the Gage Publishing Company as treasurer.

Advertising Exposition

During the week of November 12 the Advertising Club of New York, said to be the largest organization of advertising men in the world, held its first exposition at the 71st Regiment Armory, New York City.

This event was of interest to electragists in more ways than one. First, it was surprising to note the number of advertising devices that depend upon electricity for their operation. That electric signs, as well as electric displays of various kinds, are rapidly gaining popularity, was apparent at this show.

The ladies affiliated with the Club conducted a tearoom in connection with the exposition. Mrs. Mary Hope Norris, the capable demonstrator of Westinghouse appliances, took occasion to display these wares in the preparation of waffles, coffee, toast, and other short order dishes that could not have been conveniently prepared except by the time saving electric method. Mrs. Norris, who also is a member of the League of Advertising Women, proved herself to be the busiest exponent of electric cookery that ever flopped a flapjack. For advertising men are willing feeders, and seemed to enjoy the products of the electric kitchen.

Then Cy Nast, the popular publicity man of the New York Edison Company, was in charge of a booth, where a mystic oracle was passed out to the crowd. Thomas A. Edison visited this booth one day during the exposition. Many other notables were in attendance at various sessions.

Last but not least in interest to electragists, a popular member of the Association of Electragists did the wiring for the Advertising Exposition. Harry A. Hanft, president of the Independent Associated Contractor-Dealers of New York City, was the man selected to see that the juice reached the point where it was most needed.

Mr. Hanft has been doing similar work of this nature for some time. He was called upon to wire the baseball stadium for the Dempsey-Firpo fight, and a number of other installations of the same kind. Such work calls for a specialist, and any expert electrical job that Harry Hanft cannot perform has not been found.

S. E. D. Directors Meet

Advisory Publicity Council in Session at Same Time

The concurrent meetings of the board of directors of the Society for Electrical Development and the Advisory Publicity Council functioning for the Society and the Joint Committee for Business Development were closed with an informal luncheon at the Engineers' Club on November 10. F. M. Feiker, an operating vice president of the Society, acted as toastmaster. The speakers were C. L. Edgar, president Edison Electric Illuminating Company of Boston and chairman of the Executive Committee of the S. E. D.; J. Robert Crouse, Crouse-Tremaine-Kulas Company; L. D. Gibbs, superintendent advertising department, Edison Electric Illuminating Company of Boston; and W. L. Goodwin, an operating vice president of the S. E. D.

Combined meeting of the Executive Committee and the Directors was held in the directors' room of the Guarantee Trust Company, New York City, on Saturday, November 10, with C. L. Edgar in the chair. W. L. Goodwin and F. M. Feiker presented reports of various developments. Announcement was made of the establishment of the Pacific Coast Office of the Society, in charge of Samuel H. Taylor, in the Rialto Building, San Francisco, Cal.

Report of the membership committee indicated that seventeen new members joined the Society since the last meeting and announcement was made also that the Fan Motor Section of the Associated Manufacturers of Electrical Supplies had voted to join as a group and to participate equally with the Society in a special commodity program for the promotion of the electric fan business.

The Directors were asked to appoint a special committee to consult with a committee from the National Council of Lighting Fixture Manufacturers looking to the development of a coöperative plan for promoting the fixture business, and the following men were appointed by the chair: W. W. Freeman, W. L. Goodwin, L. P. Sawyer. This committee will meet with Herman Plaut, Wm. Horn and C. F. Hofrichter, of the Fixture Manufacturers.

J. Robert Crouse reporting for the Committee on Leagues and Clubs, stated that the meeting at Association Island was considered one of the most successful meetings that had ever been held in the industry, and attention was called to the special committee which has been appointed by W. E. Robertson to consider ways and means for coördinating electric leagues and clubs and assisting in the development of the local leagues and clubs.

Plans for increasing the facilities of the Society to care for the new burdens being put upon it by the various commodity operations were discussed and the directors voted to take additional floor space in the present building, and approved additions to the staff.

Full discussion took place over the plans for greatly increased membership. Several of the directors stated that their own knowledge of the work of the Society has been augmented during the last few months by the interviews they

—S. E. D. Service.

S. E. D. Directors Used New York's New Electric Taxicabs to Go to Luncheon at the Engineers' Club. Left to Right, H. B. Crouse, Syracuse; Fred Bissell, Toledo; James Smieton, Jr., New York City; E. W. Rockafellow, New York City; J. Robert Crouse, Cleveland; James H. McGraw, New York City; F. M. Feiker, New York City; F. D. Van Winkle, Cincinnati; W. E. Bickford, Pittsburgh; W. H. Morton, Indianapolis; L. R. Sawyer, Cleveland; John F. Gilchrist, Chicago; J. E. Montague, Niagara Falls; C. L. Edgar, Boston; and W. L. Goodwin, New York City

had had with the prospective members. In this discussion it developed that there is a lack of understanding of the dues of the Society. It has not been generally realized that the annual dues have been reduced more than fifty percent during the last two years, and that the present budget of the Society, while more than three times the total collected on original dues, actually represents less than half the cost to each individual member. In other words, while the dues have been decreased more than fifty percent, the membership has increased enough to triple the membership of the Society.

In addition to the committees already mentioned, the directors approved the plan for establishing a group of special committees among their number to act in an advisory capacity on many of the activities of the Society. This step is made necessary because of the increasing volume of demands upon the Society's staff, with the necessity of calling upon the directors oftener than twice a year for their counsel and advice.

The meeting adjourned to a luncheon at the Engineers' Club, held jointly with the Advisory Publicity Council of the Society for Electrical Development, to which the directors were conveyed from staff headquarters in electric taxicabs.

The elimination of waste because of duplication of material in the production of dealer helps and literature was the outstanding subject discussed at the meeting of the Advisory Publicity Council, functioning for the Society and the Joint Committee for Business Development, held in New York, November 9 and 10. L. D. Gibbs, superintendent of the Advertising Department of the Edison Electric Illumination Company of Boston, presided.

It was the unanimous decision of the eighteen advertising and publicity men present that a great deal of money could be saved the electrical industry if the Society would produce the general sales helps and window display material for the entire industry. This would relieve individual manufacturers of the work and expense of these details and leave them free to produce material to emphasize their own individual products.

Next Fixture Market

The next lighting equipment market and dealers' convention will be held in Chicago from January 21 to 26 at the Hotel Sherman. As usual, this event will be supported jointly by the luminaire manufacturers as well as the dealers.

It is understood that extensive plans are being made by the dealers for their convention sessions, during which such subjects will be taken up as proper designs, advertising and round table discussions, and how to improve business methods.

Manufacturers are expected to exhibit all nationally advertised lines. Get together meetings, known as the melting pot of the industry, will take place at the noonday luncheons, with special speakers in attendance and entertainment provided each day. A special attraction will be a booth devoted to the accomplishments of the "Notice the Lighting Equipment" campaign.

A tentative program of the National Association of Lighting Equipment Dealers, the dealers' organization, shows that the following authorities will give addresses on the subjects noted: Robert Parrish, Period Design; W. R. McCoy, Period Design; Robert Zanoth, president, Netting Company, Detroit, Advantages for a Dealer in Promoting the Sale of Glassware; Charles Gainey, Detroit, Sales Skit; Herman Plaut, president, National Council; C. J. Netting, Sr., Results Secured from Talking and Advertising Three Percent; E. R. Gillet, Gillet-Hoehler Co., Toledo, Shop and Selling Costs; and J. C. English, The English Co., Portland, Ore., Methods Used by Dealers for Remunerating Salesmen.

A new feature in connection with the dealers' convention is an educational exhibit which will consist of the showing of stationery, direct mail matter, and other publicity developed by dealers as sales helps in the conduct of their business. This exhibit will also include books on lighting, design, interior decoration and other subjects. National publications covering the electric lighting field will be featured, and dealers will be told not why they should read such magazines occasionally but why they should subscribe for and read them regularly.

Lecturing in Cleveland

A series of lectures on sales tactics and business methods were given to electrical sales people and executives in Cleveland on the evenings of November 6, 7 and 8. Howard J. Wisehaupt, a business analyst and a sales counselor conducted these meetings under the auspices of the Electrical League of Cleveland.

There was no obligation to attend these lectures which were free. Mr. Wisehaupt, who had recently completed a two year tour of the country on which he collected a vast amount of business information came to the Cleveland group of electrical people with a wealth of up to the minute ideas, it was said, and all who attended them seemed well pleased with his lectures.

A card party was held in the League rooms on November 22 at two o'clock in the afternoon, and bridge and five hundred were the especial games played. This was for Gobblottes only, it was announced. Prize winners were given a rousing twelve pound turkey and a fat twelve pound ham.

In the evening of November 27 a Turkey party took place, also in the League rooms, and this was for Gobblers only. No entrance fee was required, but there was plenty of chances for a rollicking good time and other good things. Light refreshments were served to the tune of jazzy entertainment. This was in the nature of a good luck party too, and those who had a four leaf clover in their left shoe or a lucky number pasted in their hat, it was said, would depart with the "makins" of a Thanksgiving dinner—but it could not be ascertained just who these lucky gazaboes were before going to press.

Philadelphia Conference

An electrical conference was held at the Elks' Hall in Philadelphia on the evening of November 22 at which Robert Maitland Nesbitt, assistant chief, electrical department, Philadelphia Fire Underwriters' Association, gave answers to questions touching on the 1923 National Electrical Code. Numerous lantern slides were used which clearly portrayed the answers in graphic form.

Frederick M. Shepard, president of the Electric Club of Philadelphia, presided. Other officers of this body are: Washington Devereux, chairman; Herman Eckstein, vice chairman; William K. Kerford, treasurer; and Richard H. Silbert, secretary.

New Local Group Formed

A local Association of Electrical Contractors and Dealers has been formed in Salina, Kansas. C. G. Loomis has been elected president and George H. Shank, 146 South Santa Fe Street, secretary. Meetings are held on the first Thursday of each month.

As evidence of the progressiveness of this new organiaztion, a local representative was selected to attend the annual A. E. I. convention at Washington, D. C.

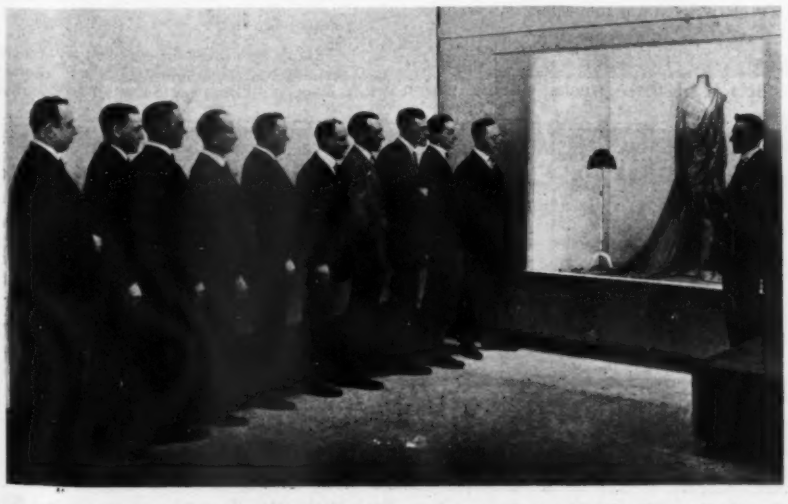
Winnipeg Light Campaign

As the result of the Minneapolis coöperative lighting campaign for the benefit of contractors and fixture men, described in last month's issue, electrical interests of Winnipeg, Manitoba, have just finished a similar campaign which was begun in that city about November 19.

Frank T. Groome was instrumental in interesting the Winnipeg electrical men in a lighting campaign and addressed several meetings there during the week of October 22. A delegation from Winnipeg visited Minneapolis on October 26 and 27 for the purpose of looking over the lighting display. The members of this delegation, shown in the accompanying picture are, from left to right: Kenneth A. McIntyre, Society for Electrical Development, New York City; E. J. Teberg, Public Service Company of Northern Illinois, Chicago; Frank T. Groome, Holophane Company, Ltd., Toronto; R. V. Slavin, Winnipeg Hydro Electric System, Winnipeg; D. G. Sutherland, Winnipeg Electric Railway Company; J. H. Schumacher, Schumacher-Gray Company, Winnipeg; M. C. Gilman, Winnipeg Electric Railway Company, Winnipeg; Arthur M. McFadyen, Manitoba Electrical Association, Standard Underground Cable Company of Canada, Ltd., Winnipeg; Lee Dickson, McDonald & Willson, Winnipeg; Harry Matthews, Canadian Fairbanks-Morse Company, Ltd., Winnipeg; and Roy A. Palmer, National Lamp Works, Cleveland, Ohio. It is significant that Mr. Dickson and Mr. Schumacher are electragists.

The exhibit at Winnipeg was known as the "Modern Business Lighting Demonstration," corresponding to the name given to the one at Minneapolis called the "Better Business Lighting Display."

Kenneth A. McIntyre of the Society for Electrical Development, who organized the Minneapolis campaign, was a factor in the Winnipeg exhibit. He visited Winnipeg on October 24 and 25 and addressed three meetings on the subject of commercial lighting campaigns, describing what had been done in Minneapolis and making suggestions for Winnipeg.



View of Winnipeg Delegation Taken in the Lecture Room at the Better Business Lighting Display Held in Minneapolis

Third Home For Salt Lake

A committee was formed recently in Salt Lake City to investigate conditions looking toward the exhibiting of an electric home in that section of Utah. E. H. Eardley, formerly A. E. I. Executive Committeeman is chairman, and the other members are L. B. Johnson, E. A. Evans and G. R. Randall.

The committe found the conditions favorable to the holding of an electric home exhibit, and its report to the board of trustees of the Rocky Mountain Electrical Coöperative League, under whose auspices it was formed, was enthusiastically accepted. It is expected that this home, which is the third to be exhibited in the territory by the League, will be opened about May 1.

Fayetteville Electric Home

The Hunter Brothers Electric Company of Fayetteville, North Carolina, is known as a firm of Dedrudgerizers in electrical contracting and dealing work. Being inspired by the Alladin episode, both T. M. and W. L. Hunter, who head the company, wished that an electric home could be built in their fair city with every part of it electrically perfect and true to the homelike ideals of those who knew that their mothers and wives were the first ladies of the land.

These young men planned and dreamed, and from imagination and the experience of all those who could be interested in offering suggestions and ideas, rose the first electric home ever exhibited in that section of the country. Being an impossibility to keep the news in regard to it from going beyond the city limits, New York and other distant points have at last learned about it. This home was exhibited last October.

Although the builders boasted of the attainment of perfection in every other particular, the electrical equipment far surpassed all other features of the model dwelling from the standpoint of economy and convenience. It was said that a trip through this fairy home was worth hundreds of dollars to anyone contemplating building, for there were ideals gathered from the wide world, thoughts that had taken form in brick and wood and metal, dreams that had come to the home builders of many generations and that had for the first time taken fairy form in this electric home, which it was said was really and truly much more than it claimed to be when it was called Fayetteville's first ideal electric home.

Philadelphia Electric Home

First Model Dwelling, Exhibited for a Month, Attracted Record Audience

Philadelphia's first electric home, which was open from September 27 to October 28, attracted 54,539, which is said to be a record breaking attendance. The event was duly celebrated on October 30, when Walter H. Johnson, senior vice president of the Philadelphia Electric Company, gave a buffet luncheon at the home to the officers, board of managers and the publicity committee of the Associated Electrical Industries of Philadelphia under whose auspices the exhibition was held. Jos. B. McCall, president of the Philadelphia Electric Company, and C. J. Russell, vice president, David C. Birdsell, chairman of the general committee, Washington Devereux, of the Board of Fire Underwriters, and John H. McClatchey, who built the house, made addresses.

The home was open to the public for 32 days, Sunday included, with an average daily attendance of 1,686 and with a maximum number of visitors for any one hour of 322. The average number of visitors per hour for the entire ex-

hibit was 196. Sunday, October 28, the closing day, saw the largest number, the attendance being 3,435. On nine days the attendance exceeded 2,000 and the maximum time to gain admittance after getting in line was 1 hour and 18 minutes. Here are some interesting figures in brief:

Amount expended by the general committee $11,500, contributed by 80 firms.
Cost per guest admitted 21 cents.
Total number of prizes awarded 98, representing retail value of $5000.
Prizes given by 41 firms.
Number of booklets distributed 45,000.
Number of window display cards 1,200.
Number of stickers 250,000.
Number of advertising matter mailed direct 70,000.
Newspaper advertising 11,000 lines.
Number of billboards advertising Home nine.
Average staff on duty, daily paid staff 10; voluntary staff 6; cleaning staff 2.
Number of meals served to staff 760.

The electric home was made possible through the coöperation of the local central station, the contractors, dealers and the manufacturers' agents. The home was on Wellesley Road just off the famous Lincoln Drive, easily accessible by motors and four blocks distant from the Chestnut Hill branch of the Pennsylvania Railroad, and eight blocks from the nearest trolley lines.

The home was not a large one, consisting of living room, dining room and kitchen on the first floor, three bed rooms on the second floor, and the basement, the two rooms on the third not being used. Naturally this restricted the number of visitors, and it is estimated that if two houses were used the attendance would have been over 100,000, as hundreds of automobiles passed daily without stopping owing to the long lines of patiently waiting visitors.

The officers of the Associated Electrical Industries of Philadelphia were: Chairman, David C. Birdsell; vice chairman, A. L. Hallstrom; secretary, W. E. Schramm; treasurer, C. Lester Sherman. Board of Managers, Herbert Sulzer, Alfred Volker, Jr., J. F. Monoghan, C. Lester Sherman, Jr., Jos. G. Crosly, H. Calvert, P. H. Bartlett, Washington Devereux, A. L. Hallstrom, Philip H. Ward, Jr., John H. McClatchey, David C. Birdsell. Publicity Committee, Philip H. Ward, Jr., chairman, George Maertz, Karl Bloomingdale, Robert Beard, F. C. Wheeler, S. B. Gilpin, W. J. Young and William H. Evans.

Motor Booklet Issued

"Electric Motors—How to Choose and Use Them" is the title of a booklet issued by the Reliance Electric & Engineering Company of Cleveland. There are thirty two pages in all, devoted to the selection and use of electric motors, and the diagrams and illustrations shown make the text clearly understood.

These chapter headings taken at random prove the usefulness of this book to electragists: The Advantages of Electric Power; Load Factor and Motor Cost; Getting the Right Kind of Motor; Protecting and Installing the Motor; How a Motor Operates; How Much Power Do I Need?

Brief Items of News

Joint Committee Announces Following Happenings of Interest to Electragists

R. E. Heerman, Joint Committee correspondent at Alhambra, Cal., had charge of the electrical installation in the model electrical bungalow exhibit held during the recent carnival in that city, which attracted thousands of visitors. The idea of the exhibit originated when a manufacturer of concrete tile blocks wanted some interesting display for his material, and it was suggested by Mr. Heerman that he supply enough for a bungalow. He did and local labor was secured to erect it, Mr. Heerman attending to the electrical work.

The Kansas City Electric Club at a recent meeting elected the following officers: President, F. L. Funsten; vice presidents, G. A. Buckley, P. H. Hopkins and H. C. Evans; treasurer, J. F. Porter, Jr.; secretary manager, G. W. Weston.

The electrical and building interests of Mount Vernon, N. Y., recently completed the second of Westchester County's electric home demonstrations under the auspices of the Westchester Lighting Company. The home was kept open for a period of three weeks, during which time large crowds of visitors were attracted. A third demonstration home will soon be opened at White Plains.

The San Diego Electric Club has made arrangements with the educational authorities of that city to coöperate with them in the vocational education and guidance work of the schools. The plan is to have instructors from the high schools meet with committees of the Electric Club to discuss ways of making the courses up to date and practical from the industrial standpoint. One feature is to have the students taking electrical courses interview the electrical men of the city on the practical aspects of their work.

Promoting Christmas Sales

Much foundational work has been done by the Electric Service League of Toronto, Canada, in the last few months to educate architects, contractor-dealers, and the building contractors to appreciate the meanings of the Red Seal idea as developed by that organization and explained in last month's issue. The League manager in order to attain the desired end has addressed meetings of the contractor-dealers and also meetings of the Toronto Home Builders' Association. Contractors individually report concrete results in connection with the Red Seal campaign to promote more wiring.

In preparing to shoulder its share of the burden of Christmas selling effort, the League has adopted methods which have never been used in Toronto to boost the Christmas trade to the fullest possible degree. The following scheme, approved by the Christmas Campaign Committee, sets forth some methods being undertaken:

1. Taking 30 billboards, covering all sections of the city to display poster 20' x 9' bearing this message: "Buy her Something Electrical

This Poster, Twenty Feet Long and Nine Feet High, Has Been Placed on Thirty Billboards in Toronto by the Electric Service League

NOARK UNIVERSAL
SERVICE SWITCH
(Standardized)
PROTECTION SERVICE
JP
CONSUMER'S FUSES
THE Perfected Service Entrance Device, consolidating the meter service and distribution devices in a single unit and providing—
All Service Essentials—
1. Enclosure of all live parts
2. Externally operated safety service switch
3. Service cutout
4. Insurance against meter tampering and current theft
5. Meter connection block
6. Meter testing device
7. Lock-Off for Service Inspection
With these Distribution Essentials—
8. Distribution branch block
9. Enclosure of all branch circuit wire connections
10. Enclosed yet readily and safely accessible branch circuit fuses

Costs less-does more

TO supply complete service entrance and distribution facilities with crude, old-time equipment, the Contractor would have to install, with suitable internal and external connections: (1) A service switch; (2) a meter connection and testing block; and (3) a distribution cabinet.

The introduction of the Noark Meter Service Switch, combining the service switch with the meter connections and testing block, reduced this work to that of installing and connecting: (1) A Noark Meter Service Switch; and (2) a distribution cabinet.

Now comes the Noark Universal Service Switch incorporating all three elements—service switch, meter block and branch block—plus enclosed yet accessible load-side fuses—in a *single* device.

Central Station requirements are fully met, the consumer gets a better looking, centralized installation, the Contractor is enabled to furnish a better, simpler and more complete installation at a competitive price.

The JOHNS-PRATT COMPANY, *Hartford, Conn.*

Division of Colt's Patent Fire Arms Mfg. Company.

BOSTON CHICAGO CLEVELAND NEW YORK EXPORT DEPARTMENT
PHILADELPHIA PITTSBURGH ST. LOUIS SAN FRANCISCO 30 Church St., New York, N. Y., U.S.A.

for Christmas." This poster to bear the words in big type, "Watch Dealers' Windows for Suggestions."

2. Free window dressing for electrical dealers in Toronto. A contract is to be made with firm of experts. An exceptional display is planned, not only for sales effect, but for educational value to the dealers of Toronto.

3. Special meeting of dealers, to explain the details and conditions to be held in November. At this meeting, League directors on the Christmas committee will attend, and arrangements will be made to tie in billboard, window dressing and general publicity.

4. Cotton placards, bearing the message: "Electrical Gifts for Christmas," will be printed for use on wholesale and retail delivery trucks and wagons.

5. Electrical pages in the newspapers. The League will offer to supply suitable reading material if the newspapers develop electrical pages or sections and will do what it can to create supporting advertising.

6. If conditions warrant it, supplementary newspaper advertising by the League, reinforcing the other publicity, will be placed.

Southeast Division N.E.L.A.

F. M. Feiker, one of the operating vice presidents of the Society for Electrical Development, spoke on Dividends from Coöperation at the 11th annual meeting of the Southeastern division of the National Electric Light Association held at the Hillsboro Hotel, Tampa, Fla., November 19 to 22.

Laurence W. Davis of the A. E. I. attended this meeting, at which electragists were well represented. Samuel Adams Chase of the Westinghouse forces was also in attendance.

Secures Important Contract

A contract covering the electric wiring, the 72 station telephone switchboard and equipment, fire alarm, signal bells and clock system for the new G. A. R. Memorial junior high school of Wilkes-Barre, Pa., was awarded to the Shepherd-Rust Electric Company, an electragist of that city, at its bid of approximately $28,000.

West Canada Man Dies

The death on September 28 of F. B. Fox, who was a partner in the firm of Fox & Mainwaring of Victoria, British Columbia, was learned with deep sorrow.

Mr. Fox was well known in electrical circles from Winnipeg to Victoria in Canada. Twelve years ago he came from Winnipeg where he had been in the employ of the Winnipeg Electric Railway to take the position of chief electrician at the Empress Hotel in Victoria. After nine years of this work he engaged in the electrical contracting business, which business pursuit he followed successfully until his death.

The firm of which Mr. Fox was a partner was the first to come into the membership of the Association of Electragists during the campaign carried on by Secretary Laurence W. Davis, then director of the Department for Promotion and Development, in 1922.

New York Electric Home

After a period of public inspection of four weeks the New York Home Sweet Home Electric, located at Bayside, Long Island, was closed on November 18. This dwelling was constructed as the official demonstration model house in connection with the 1923 New York Electrical and Industrial Exposition, accounts of which have been given in recent issues of this magazine.

Except for its special electrical planning architecturally the home at Bayside differed but little from the nationally known Home Sweet Home opened by the late President Harding at Washington, D. C., for the 1923 Better Homes in America campaign. Henry Atterbury designed the electric Home Sweet Home at Bayside, according to the small house plan of the *New York Tribune*.

Develops Lighting Business

The Society for Electrical Development reports an ever growing interest in the subject of residence lighting and store lighting campaigns in which it has been active.

From data on hand it is estimated that in over one hundred large and small communities individual concerns or coöperative organizations are starting educational, sales and advertising drives to fully inform the public of the tremendous benefits of better lighting in home, office and store. The latest returns available from New York, Philadelphia and other cities are highly encouraging to those piloting this very important work.

The S. E. D. stands ready to serve the industry in the promotion of lighting activities and wishes to bring to the notice of all lighting men the very complete advertising and sales material prepared and available for both residence and store lighting activities.

A. E. I. Headquarters Offers a Liberal Reward of Brown Derbies to the First Electragist That Guesses the Full Name of This Black Hander Who Was Caught on the Convention Floor at Washington and Turned Over to Local Police Authorities

Denver Bids Vary Widely

In a recent bulletin of the Denver Electrical Contractors' Association, Secretary-Treasurer H. Alex Hibbard presented a tabulation of the various bids submitted on two jobs to show the wide variation in estimates of electrical work, as follows:

A	$1090.00	A	$1290.00
B	1275.00	B	1575.00
C	1400.00	C	1594.00
D	1587.00	D	1665.00
E	1638.00	E	1765.00
F	1856.00	F	1925.00
		G	1979.00
		H	1995.00

Mr. Hibbard says that the figures shown above were obtained from architects' offices and are a fair example of the usual figures on work at the present time. In both cases the contracts were awarded to the lowest bidders, who in turn claim to have checked their figures and were unable to discover any omissions or errors. He continued:

"The estimated costs are not available for use in this case but it is very evident that some of the figures are the result of fool guessing and this is the practice we are endeavoring to eliminate.

"It is not our intention to boost prices but to know that when one of our members makes an estimate for doing a piece of work he will have included in his figures of costs every item necessary to complete the job. The overhead is fixed and cannot be changed. The profit he always adds but the reason for his failure to show a profit on the completed work is that in estimating much material is left out."

Milwaukee Jobbers Help

"If every contractor knew his cost, would the well known wail still go up? We figure and refigure, and then we must either lose the job or take it at a loss," reads a recent communication sent out by the body of jobbers in Milwaukee—erroneously mentioned as the jobbers of Detroit on page 46 of the October issue—that is endeavoring to get the

ANOTHER REASON FOR USING ARROW SOCKETS

THE ARRO-GRIP CAP

This wouldn't have happened with ARRO-GRIP

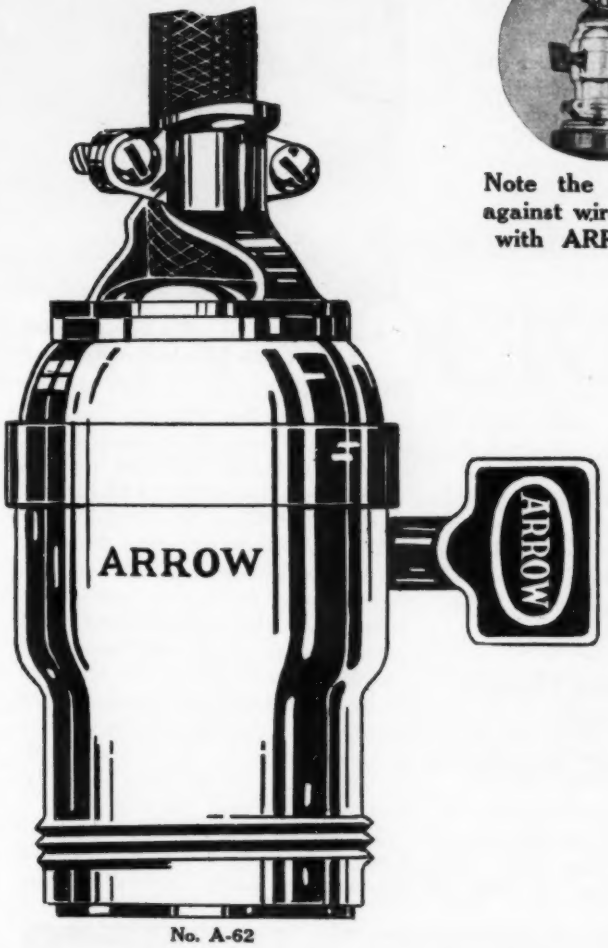
Note the insurance against wire troubles with ARRO-GRIP

A and AA

O

D and DD

W



No. A-62

R

S

T

F and FF

Any Arrow Socket Body will take No. 62 Arro-Grip Cap. Use Arro-Grip Sockets for industrial pendent work to prevent fraying and pulling away of wires from binding screws.

THE ARROW ELECTRIC COMPANY
HARTFORD, CONNECTICUT

ELECTRICAL ARROW WIRING DEVICES

ARROW

The complete line of Wiring Devices

electrical contractor-dealer of that city to appreciate the value of his using proper business methods. The writer continues, emphasizing the importance of bookkeeping in the dealer's business:

Is it the contractor or customer who beats the job down? When a job offers, the first thing the average contractor does is to learn if possible whether a competitor is estimating on the work, and if so, what price has been offered and what equipment specified. The next step is to get under the competitor's price. Fewer outlets, cheaper fittings, less conveniences, are suggested. Trimming, lopping, shearing, pruning and clipping are resorted to. In the end the customer gets the simplest, cheapest job he will accept—not the best and most he will stand for.

"Sell 'em all they'll stand for" is the motto of every business but ours. We it seems have adopted the slogan, "Sell 'em less and sell it cheaper."

With an accounting system that will enable every contractor to know his true costs, such a condition as this should not exist and would be a great benefit to all concerned in the industry.

Why not do your share by installing the system recommended by the Milwaukee Electrical Contractor-Dealers' Association?

The Charleston Show

By M. J. Rubin

In Six Days 12,500 People Witnessed First Exhibit of Kind in That Territory

Under auspires of the Electrical Contractors and Dealers' Association of Charleston, South Carolina, an electrical show was staged during the week of October 15 which in six days brought the electrical idea strikingly home to fully twelve thousand five hundred persons who visited it. As there are only seventy thousand people in Charleston, nearly half of whom are colored, it can easily be seen how successful the show, the first of its kind ever attempted in that section of the country, was. There is no reason why a similar event could not be staged in any city the size of Charleston, or smaller. The electrical dealers and contractors found that the results more than repaid the cost in trouble and money. They are now looking forward to another show in the future, on even a more elaborate scale.

A Row of Floor Lamps and Palms Divided the Building into Two Aisles so that Visitors Could Proceed Around the Booths in a One Way Procession

The success of the great event, which for a week was the talk of the town and the center of public interest, was due to the fine spirit of coöperation exhibited by the dealers, manufacturers and wholesalers. Manufacturers of electrical products conducted demonstration booths and gave premiums which were awarded to visitors, and wholesalers likewise contributed premiums and assisted in other respects.

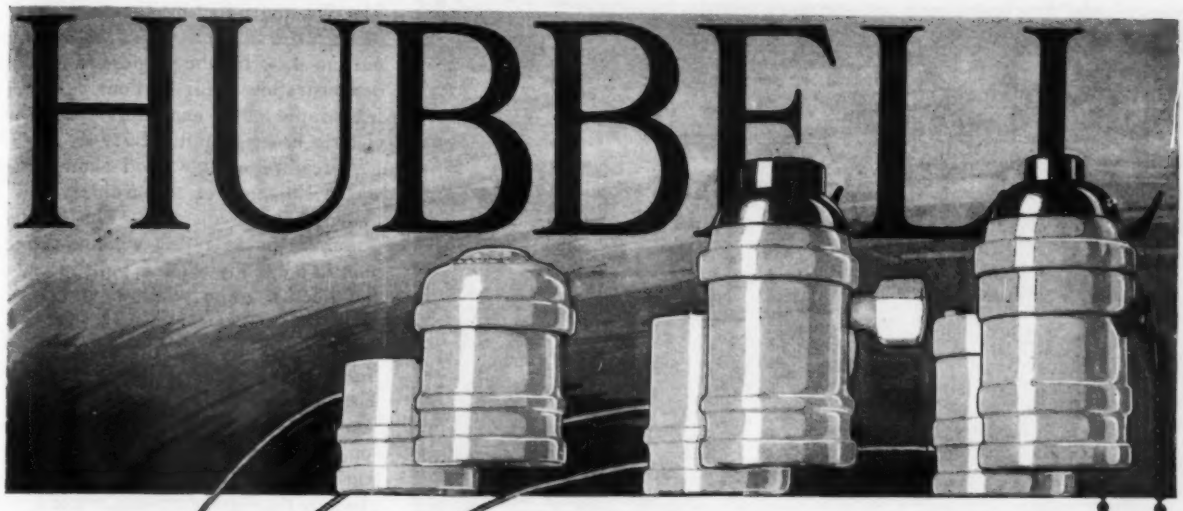
The following manufacturers had booths, with expert demonstrators on hand: Westinghouse Electric & Manufacturing Co., Apex Electrical Distributing Company, Edison Electric Appliance Company, Armstrong Manufacturing Co., and Landers, Frary and Clark. In addition a beautiful lighting exhibit was displayed by the National Lamp Works, and a wiring exhibit by the General Electric Co. Adjustable lamps were displayed by S. Robert Schwartz & Bro. Vacuum cleaners and radio were demonstrated by the local electrical concerns.

Such edibles as waffles, cakes, pies, biscuits, and coffee, cooked electrically, were distributed to visitors, and other cooking was also done. Every staple household electrical appliance was demonstrated. Girls from domestic science departments of educational institutions were special guests on one or two occasions. Plenty of advertising literature was distributed.

As the purpose of the show was educational no goods were sold, nor was it stated by whom any of the goods were sold locally. But several signs were prominently displayed listing the members of the Association, who are as follows: John MacMillan, Michael J. Grace, R. F. Momeier, Stokes Electric Co., Southern Electric Co., Electric Supply Co., Louis D. Rubin Electrical Co.,

These Men Were Largely Responsible for the Charleston Show, Left to Right, Top and Lower Row: M. J. Grace, J. H. Discher, R. F. Momeier, Stuart Cooper, A. L. Stokes, A. D. LaRoche, J. McMillan, L. D. Rubin, T. A. Brookbanks

HUBBELL



PORCELAIN SOCKETS

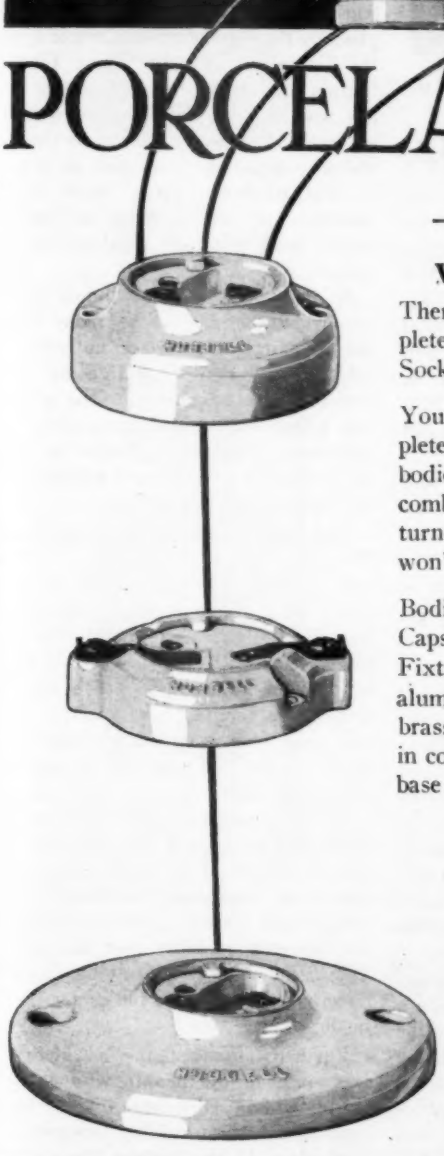
—bodies interchangeable with all caps and all bases

There's convenience and economy in handling the complete and interchangeable line of Hubbell Porcelain Sockets

You don't have to lay in a big stock of each complete socket. Just keep on hand an adequate supply of bodies, caps, and bases, in various types,—and sell any combination required. You'll profit through quicker turn-over, have less money tied up in stock, and you won't need as much space for storage.

Bodies are made in pull chain, key, and keyless types. Caps in the following types—Pendent Cap, porcelain; Fixture Caps, ⅛" and ¼" brass; ⅜" brass and aluminum; ½" aluminum; ¼" angle, brass; ⅜" angle, brass and aluminum; ½" angle, aluminum. Bases—in concealed, cleat, small ceiling base, and large ceiling base types.

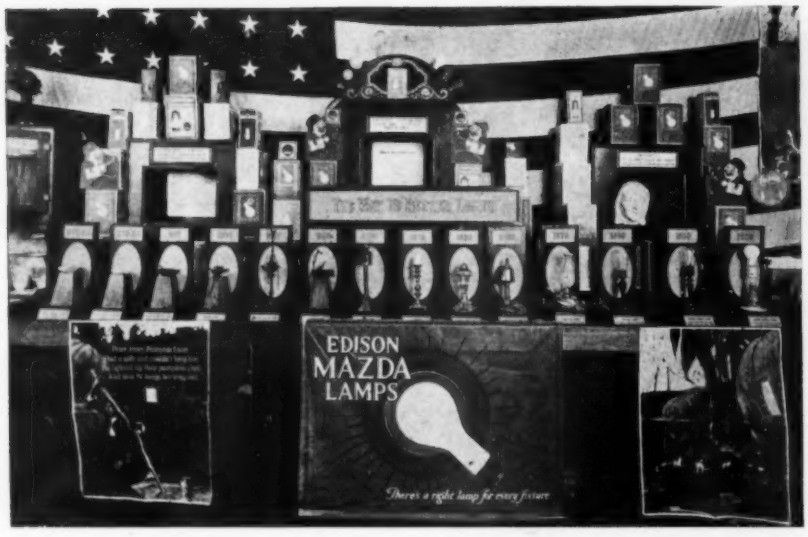
2425-U



HARVEY HUBBELL INC
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U.S.A.

ELECTRICAL WIRING DEVICES

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST



This Exhibit of the National Lamp Works at the Charleston Show Setting Forth the Progress in Illumination Won First Honors

and the Consolidated Railway, Power and Lighting Co.

Waffles were featured on a day designated as Waffle Day. Another interesting feature was the award of ribbons to the booths, a committee consisting of the presidents of the Rotary and Kiwanis Clubs and the Chamber of Commerce serving for this purpose.

A vacant store on King Street, in the center of the retail section of the city, was obtained for the show, and proved to be scarcely large enough to handle the large daily throngs. This store was fittingly decorated, and brilliantly illuminated by hundreds of lighting fixtures, table lamps, floor lamps, and boudoir lamps which the dealers displayed. They also displayed scores of electrical devices apart from the demonstrations. Local grocers, bakers, furniture stores, dairies, and plumbers furnished needs in their lines, for advertising purposes.

A total of eighteen electrical articles, contributed by manufacturers and wholesalers, were publicly awarded on the Monday after the show ended. Every visitor was given the opportunity to win one of the prizes, through writing his or her name on a numbered card, retaining the stub, and depositing it in a box. This not only stimulated attendance, but resulted in a valuable list of prospects, about 12,000 names having been obtained in this way.

Electricity at Food Show

Electragists Get Christmas Display Ideas From Providence Affair

Under the auspices of the Rhode Island Retail Grocers' and Marketmen's Association, a Food Show was held at the State Armory in Providence, R. I., the week of October 29 to November 3. The show opened at seven o'clock on Monday night and was open daily from one to ten from then to Saturday night. The grocers and marketmen of Providence began to conduct shows in 1905 and continued to do so every year or at intervals of about two years up to 1916 when on account of our entry into the war they were discontinued until 1922. This was the second show held since the war.

These shows have always been well advertised and well attended. The estimated attendance at last year's show was 130,000 people for the week and the estimates for this year ran up as high as 150,000. These, however, are only estimates and no accurate count is made.

At last year's show the Narragansett Electric Lighting Company had an exhibit and the results were so gratifying that it did not hesitate to take a couple of booths for this year's show. In addition to this the Union Electric Supply Company, jobbers, took two booths in one of which a display of radio apparatus was shown and in the other a display of laundry and other household appliances. One booth was taken by the Selected Electric Appliance Company, in which a household refrigerating machine was made a feature and one booth was taken by the Rhode Island Electrical League. These six booths were all together. The booth in which W. A. Huse & Son demonstrated an electric washing machine was near by.

These spaces, however, did not complete the electric exhibit at the show. The Washburn-Crosby Company, in its booth used an electric range throughout the show for the purpose of cooking demonstrations with its flour. A number of the other exhibitors used some electric heating appliances.

A feature of this food show which was a little out of the ordinary was a model window display. This display was made by an expert window display man in a dummy window built in one of the booths. The window itself was about ten feet wide and six feet deep and was lighted with modern window lighting, holophane shades being used. The installation of this lighting system was supervised by Harry E. Dawson, secretary of the Rhode Island Electrical League, and the material was supplied by the Narragansett Electric Lighting Company and the Union Electric Supply Company. A card stating that this was modern, efficient window lighting and that it was installed by the two above companies, was used as a part of the window display made which otherwise was one showing all the different food products exhibited at the show.

As the object of this window was to encourage the grocers to make better use of their window space, no better exhibit of window display lighting could possibly have been made. The window was advertised in the newspapers and attracted a great deal of attention from the grocers in particular as well as from the general public.

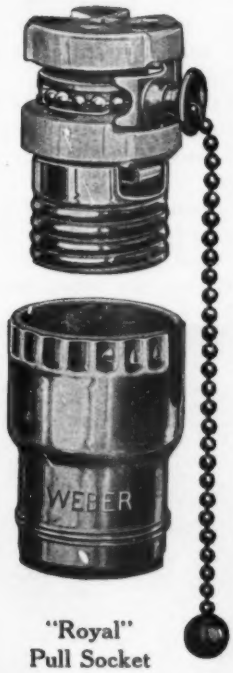
The exhibit made by the Rhode Island Electrical League was of a purely educational character, whereas the other exhibits were of a merchandising character. In the rear of the booth two compartments were made, in each of which was placed a table upon which were the same table cooking appliances. In the left compartment all connections were made to the hanging fixture installed above the table. In the right compartment all connections were made to convenience outlets, and Mr. Dawson, who was in charge of the booth throughout the show, explained to thousands of people who visited it, the advantages of the convenience outlet over the old and unsatisfactory way of relying for electrical connection upon the center fixture in the room.

Further to facilitate the instruction being given to the people who attended the show, he used a large display board showing modern wiring devices and methods. At the bottom there was a short piece of armored cable with an outlet box connection and below this a

WEBER DEPENDABLE WIRING DEVICES

Distinguish the best from the rest!

It is easy, and Decidedly Profitable



"Royal"
Pull Socket

SPECIFY

"ROYAL" SOCKETS

They employ a familiar construction, but give unmistakable evidence of that nicety of manufacture and perfection of finish that have distinguished all Weber goods for more than fifteen years.

And the Line is Complete

6 Socket Bodies

8 Switch and Rosette Bodies

20 Caps 19 Bases

On your next order for porcelain sockets, specify WEBER
CONSULT OUR CATALOG

HENRY D. SEARS
General Sales Agent
80 BOYLSTON STREET
BOSTON 11, MASSACHUSETTS

SALES REPRESENTATIVES IN:
New York Philadelphia Cleveland Chicago
San Francisco Los Angeles

short length of a pair of insulated wires run in circular loom. This showing of the two methods led a great many people to ask questions and permitted of the giving of a great deal of very valuable information to a very large number of people.

Just above these wiring specimens, were a couple of bull's eye installations. One was with a switch to illustrate how one can tell whether or not he has turned off the cellar lights and another was used in connection with a convenience outlet to show the people how they could make certain whether current was still on their electric flat irons or other heating devices.

The upper part of the board was occupied by convenience outlets and the various types of switches. These switches operated a lamp mounted at the top of the board proved quite enticing to those who saw the board. Three and four way switches were shown in actual operation, and tell tale lights and convenience outlets were also exhibited.

In addition to this display board which Mr. Dawson had constructed for this purpose, he had an exhibit of the different types of electric lights suitable for use in the home, and he distributed to those interested a booklet entitled "The Modern Home."

Another part of the League exhibit was the display of "Make This an Electrical Christmas," in all the different electrical booths. It was thought good business to bring the Christmas idea home to just as many who visited the show as possible, and it would seem that more were reached at the show than could be reached as effectively in such a short time and at so little expense in any other way.

A feature of the Saturday night program was a lecture by Harry E. Dawson, secretary of the Rhode Island Electrical League, on "Electric Servants in the Home." This lecture was given in the lecture room in which the domestic science lecturer gave her talks and demonstrations every afternoon, and which was used for motion pictures and evening lectures. This lecture was featured in the newspaper advertising.

For illustrative material Mr. Dawson used the display board already mentioned, the display of lamps, and a set of charts. The talk began at 8:30 and he planned to talk for about a half hour. However, as people kept coming in and asking questions that had already been covered it was nearly ten o'clock before he could leave. During this talk "The Modern Home" booklets were distributed.

The Why and How of It

E. F. Newkirk, display manager of the Edison Lamp Works, says:

"The possibilities and opportunities of a bigger and better electrical business through better window displays will surprise even those who profess to know a good deal concerning the retail business but who neglect their show windows."

And you may take this as coming from one who knows.

Helping the Dealer

An educational campaign in behalf of electrical dealers is being undertaken by S. Robert Schwartz & Brother of New York City. Sales campaigns are urged to be undertaken, and to encourage this activity free selling helps are furnished including newspaper advertising layouts, window display suggestions, booklets, posters, etc.

Mailings by the company during the fall advised: "The Fall season is here. This means shorter days and longer nights. Office lamps become a necessity in most business houses. You can cash in when the demand is at its peak. Somebody is getting this business. How much is coming to your store?"

The accompanying photograph shows a display of the company at the Charleston electric show held from October 15 to 20. This exhibit was arranged by Robinson Farmer, who is well known in the west, having served as secretary of the Southern California Association of Electrical Contractors and Dealers, and who has been with the Schwartz Company for a number of months and is now making an extended trip throughout the south for that company.

Customer Owners Sought

The second customer ownership campaign of the Southern Canada Power Company of Montreal was even a greater success than its first one conducted in 1922.

The campaign opened October 27 and was scheduled to run for ten days with 4,000 shares to be sold. At noon on the 30th the company found it necessary to halt the campaign, 5,485 shares having been disposed of, or a 40 percent over subscription with two and a half days' work. In 1922 a total of 2,358 shares was sold to 932 shareholders in four days. The 5,485 shares sold in one week were disposed of to 1,668 shareholders.

The sales were made by employes of the company, 204 of them participating. They made 10,261 calls during the campaign.

An unusual feature of the campaign was the fact that of the 1,668 persons who purchased securities more than 1,300 were new subscribers so that the

Here is a Closeup Showing the Display of the S. Robert Schwartz & Bro. Company at the Recent Electric Show in Charleston, Arranged by Robinson Farmer, Special Representative

They Say That Women Like to Talk

Quite true. They do.

When they talk, they sell,—for the retail dealer who is keen enough to use them.

F'rinstance.

Every woman likes to save steps around the house. She likes to have things where she can get at them. She doesn't want to climb chairs or walk down cellar steps in the dark.

Mr. Wise Dealer knows this—and remembers it every time a woman enters his store.

He never misses a chance to tell her about the Bryant 651 Appliance Switch Plug. With it she can control her iron or percolator and avoid fussing with the lamp socket.

He shows her Bryant Wall Brackets, inexpensive and durable, and the Bryant Tumbler Switch. With these she can put a light where she wants it and control it easily and quickly.

The dealer talks once. The lady talks many times.

Anyone can afford a wiring device. Most people need one or two and don't know it.

They do know it when the lady gets through talking.

And the dealer gets the profit.

No 651
Appliance
Switch Plug

No. 2951
Single Pole Tumbler
Switch with Porcelain Cup

No. 674
Wall Bracket

BRYANT

"A Superior Wiring Device for every Electrical Need"

THE BRYANT ELECTRIC COMPANY

1421 STATE ST., BRIDGEPORT, CONN.

NEW YORK 342 Madison Ave. | CHICAGO 844 West Adams St. | SAN FRANCISCO 149 New Montgomery St.

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

company now has more than 3,000 of its 15,000 customers financially interested in the company.

S. E. D. Adds to Staff

George E. Jaquet, who edited the Electrical Directory of Canada for 1923, is now a member of the staff of The Society for Electrical Development. After being graduated as an electrical engineer from the University of Illinois, Mr. Jaquet went with the New York Central and Hudson River Railroad. Subsequently he was with the General Electric Company and Shawinigan Water & Power Co., Ltd. Recently Mr. Jaquet has been manager of Philadelphia's first electric home, mentioned elsewhere, under the auspices of the Society.

Testing Radiant Heat

By LILLIAN CASSELS.

Results Explained of Novel Demonstration at Recent New York Show

A striking illustration of some of the qualities of radiant heat was given during the electric show which ran at the Grand Central Palace October 17 to November 3, an account of which appeared in the last number. Although electricity is in common use for heating purposes, it is not generally known even in electrical circles that its rays can be thrown right through a blast of wind without being turned aside.

Roger Williams, New York manager of the Simplex Electric Heating Company, has convinced himself by experimentation and study extending over several years that radiant heat is closely allied to the actinic rays of the sun. The sun's rays, according to Mr. Williams, pass through the air without warming it. This appears at the outset to be a startling statement. Mr. Williams says:

"The sun is an enormous body, millions of miles away from our little earth. If it had to warm the space through which it passed it would have some job. The radiant heat of the sun, which I believe to be the same as the radiant heat of electricity, warms only the solid bodies upon which its rays fall. In other words, there must be a target before heat results. This is proved by our winter and summer seasons.

"During the time of the year when our days are long, the earth gets well warmed up and stores the heat, and we have summer. When the days are short the earth has not so much time in which to intercept the sun's rays and create heat—thus there is winter. In the tropics, where the tilt of the earth gives longer seasons of access to the sun's rays, there is more heat generated and stored by earth and its material objects, and the entire temperature of earth, air and water is much warmer the year around than in the northern and southern portions of the globe.

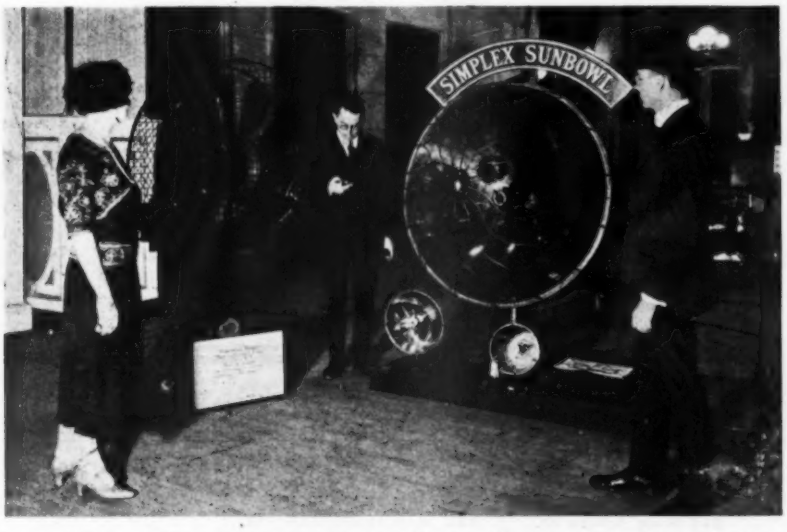
"Radiant heat, either from the sun or electricity, penetrates space but does not warm space. It warms that upon which it falls.

"Physicians claim many wonderful healing and life giving qualities to the actinic rays of the sun. I am not going into this; it is not my province. I do say that the radiant heat given off by electricity and the radiant heat of the sun are the same. Probably whatever power is found in one will be found in the other, when we have learned more about its application."

In the experiment staged at the show, a giant Simplex Sunbowl heater was set up at right angles to a 6 foot 12 blade American blower fan of the cooling type. The heater was left on continuously, and one standing as close to it as could be borne without discomfort was asked to observe carefully the effects of the turning off and on of the fan. In no instance did those taking part in the experiment feel any diminishment of the warmth from the heater when the blast of wind from the fan crossed the rays of radiant heat. Joseph Forsyth, chief inspector of the New York Board of Fire Underwriters, was among those taking part in the test. He declared he could find no difference in the quality of the heat in either instance.

This action of electric heat in passing instantly through air and warming only that which gets in its path explains why the household heater creates an instant hot spot when it is turned on in a cold room. One standing before the heater is warm immediately. Even though the room may be icy in temperature, following a night with heat turned off and open windows, it is possible to create by the use of the radiant heater a perfectly comfortable place to dress. The warmth from either steam or hot air heating plants cannot create this immediate comfort under the same conditions. The warmth from the heater is not dissipated through the air; it warms only that upon which it rests.

Among those present at the show who witnessed this demonstration were: Thomas E. Murray, New York Edison Company; Austin C. Lescardou, *Scientific American;* H. A. Currie, Chief Engineer New York Central Railroad; C. B. Larrabee, *Printer's Ink;* W. P. Coleman, National Electric Light Association; Dana Pierce, chief inspector Underwriters Laboratories; Fred R. Sill, American Blower Company; Walter Neumuller, New York Edison Company; C. K. Nichols, New York Edison Company; George Alder, Good Housekeeping Institute; and Dr. Williams, *New York American.*



The Rays From This Giant Electric Radiant Heater Were Not Affected in the Least by the Wind Blasts From the Great Blower Fan

Distribution Costs

Representative Sidney Anderson, chairman of the Joint Agricultural Committee of Inquiry, in *The Nation's Business* writes that it costs more today to transport, sell and deliver commodities produced in the United States than it

ELECTRAGISTS
Make this 1924
Better-Business Resolution

"DO IT ELECTRICALLY"

RESOLVE to become a member of THE SOCIETY FOR ELECTRICAL DEVELOPMENT, *at once*. Apply its business-building publications and campaign material, together with the other helpful service it is constantly producing, to *your* business during 1924.

Other Electragists are profiting by Society membership under a special plan recently put into effect between that organization and the Association of Electragists—International. You will profit, also.

If you are an Electragist you can join the S. E. D. and receive its full benefits at an extremely low combination membership rate.

The time is here when you must ask yourself—"Is 1924 going to be a bigger and better year for me in every way than those years which are passed and are history?"

1924 WILL be the biggest, most profitable year in your business experience if you will work, plan and study your selling and advertising problems . . . and will join and co-operate with those organizations which are working wholeheartedly to help build business for you and every related branch of the industry.

START 1924 RIGHT! Fill in the coupon printed below and learn how the S. E. D. can help make 1924 a banner year for you.

CLIP THIS OUT WITHOUT DELAY AND SEND IT TO US TODAY

Association of the Electragists, (International)
15 West 37th Street, New York, N. Y.
Gentlemen:

I am interested in learning full details about the joint-membership plan with The Society for Electrical Development, Inc., and the extremely low rates prevailing for ELECTRAGISTS.

Individual _____ **Company** _____

Street & No. _____ **City** _____ **State** _____

does to produce and manufacture them. The commission of which he is chairman has just completed a remarkable investigation of distribution which shows in one instance that in buying a pair of $10 shoes in 1921, after you had paid the various agencies of distribution you would make just six cents profit.

News Notes Concerning Electrical Contractor-Dealers

Business Changes, Store Improvements, and New Establishments Opened

A. A. Morrison Company announces the opening of an electrical supply and lighting fixture business at 320 South Wabash Avenue, Chicago, Illinois. Incorporated capital, $10,000. Incorporators: A. A. Morrison, and others.

D. X. Radio Supply Company, Incorporated, has established headquarters at the Chamber of Commerce Building, Newark, New Jersey, where a complete line of electrical and radio supplies will be carried. Incorporated capital, $10,000. Incorporators: M. Shapiro, 23 South Orange Avenue, Newark, and others.

Derby Wireless Company, in the radio and electrical supply business at 288 Main Street, Ansonia, Connecticut, has opened a branch store at 5 Bank Street, Ansonia.

Star Electric and Construction Company will conduct an electrical supply business 4928 Second Street, Pittsburgh, Pennsylvania. Incorporated capital, $10,000. Incorporators: W. B. Caven, 240 Winston Street, Pittsburgh, and others.

Detroit Electric Company is locating at 437 Woodward Avenue, Detroit, Michigan. Formerly at 113 East Jefferson Avenue, Detroit.

Newark Electric Company has established headquarters at 226 West Madison Street, Chicago, Illinois, where an extensive line of electrical and radio supplies will be handled.

H. Merkiel Electric Company is reported to have opened an electrical supply store at 611 East Genesee Street, Buffalo, New York.

Twin City Electric Company of which G. A. Anthony is proprietor, is featuring an extensive line of electrical supplies at 538 Main Street, Bethlehem, Pennsylvania.

Thorne Electric Company will remodel store building at 915 Washington Street, Bay City, Michigan, where a complete line of electrical supplies will be carried.

G. D. Cammack Electric Company will conduct an electrical supply business at 1511 South Ervay Street, Dallas, Texas. Incorporated capital, $10,000. Incorporators: G. D. Cammack, and others.

Union Radio Electric Stores, Incorporated, announce the opening of a radio supply business at 9 South Clark Street, Chicago, Illinois. Incorporated capital, $10,000. Incorporators. G. D. Bernhardt and others.

Home Electric Company, now located at 238 North Main Street, Winston-Salem, North Carolina, moved to new quarters around December 1.

Union Star Electric Company has established headquarters at King City, Missouri. Incorporated capital, $10,000.

Electric Service Company is reported to have opened an electrical supply and wiring business at Walnut Ridge, Arkansas. Incorporated capital, $10,000. Incorporators. R. L. Freeman and others.

Iodar Corporation will locate at 114 South Oak Park Avenue, Oak Park, Illinois, where a full line of radio and electrical supplies will be featured. Incorporated capital, $10,000. Incorporators: J. D. Vandercook and others.

Triumph Electric Company has opened an electrical supply store at Sheffield, Alabama. Incorporators: Victor C. McIlvaine and others.

G. H. Fisher Radio Corporation of which Attorney Louis Soadron, 1540 Broadway, New York City, and others are incorporators, will feature an extensive line of radio supplies. Incorporated capital, $20,000.

Witherbee Corporation announces the opening of an electrical appliance business at 70 Hudson Street, Hoboken, New Jersey. Incorporated capital, $25,000. Incorporators: J. F. Heffernan, 220 Broadway, New York City, and others.

Lawrence Electric Shop is open for business at 4207 Lawrence Avenue, Chicago, Illinois.

Parry Battery and Electric Company has located at Provo, Utah, where a full line of electrical supplies will be carried. Incorporators: G. R. Parry and others.

Star-Ko-Radio Company has established headquarters at 525 South State Street, Chicago, Illinois, where an electrical supply and radio business will be conducted. Incorporated capital, $25,000.

O. W. Lynch is reported to have opened an electrical appliance store at 3415 Walnut Street, Philadelphia, Pennsylvania.

Steelman Incorporated is featuring an extensive line of radio supplies at 24 Murray Street, New York City. Incorportated capital, $25,000. Incorporators: A. J. Steelman and others.

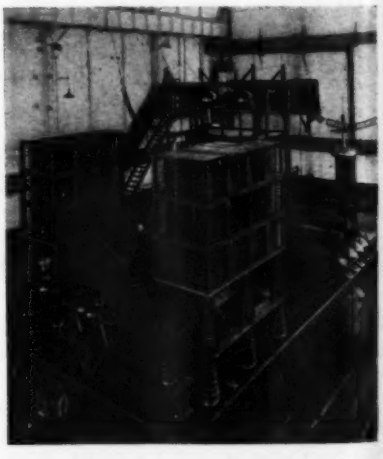
Fred F. Gloeckner, Incorporated, has established headquarters at Newark, New Jersey. A complete line of electrical supplies will be carried. Incorporated capital, $25,000. Incorporators: Fred F. Gloeckner, 166 West End Avenue, Newark, and others.

Barrows Electric Company, Incorpoated, has increased capital stock from $15,000 to $40,000. Headquarters located at 71 Allen Street, Buffalo, New York.

Washington Electrical Supply Company announces its opening at 334 West Sprague Street, Spokane, Washington.

Odell Ferry Corporation has established headquarters at 172 North Franklin Street, Chicago, Illinois, where an extensive line of electrical and radio supplies will be handled. Incorporated capital, $50,000.

Ayers Electric Company will conduct an electrical supply business at Orlando, Florida. Incorporated capital, $50,000. Incorporators: Preston Ayers, 26 North Garland Street, Orlando, and others.



Here is the Great Generator at the Pittsfield Plant of the G-E Co. Which Produced the Man Made Lightning Witnessed by Attendants at the First A. E. I. Divisional Convention

If you must use Terminal Bushings—

Then Use the Best

and the best is the

T&B NEW SPRING CABLE BUSHING

PAT. PENDING

Cat. No. 1267

Approved by Underwriters Laboratories.

The RULING is that all flexible armored Cables when entering unbushed outlet or Junction Boxes *Must Be Provided* with an approved terminal fitting.

Our No. 1267 Bushing WILL FIT 14-2 wire, 14-3 wire, 12-2 wire and 12-3 wire Armored Conductors.

Have YOU ever seen ANY OTHER Bushing that REALLY bushes the Wire—we haven't.

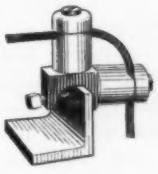
WHY carry two or more types when our No. 1267 will meet all conditions? Attached in a MOMENT—REDUCES stock—therefore SAVES MONEY.

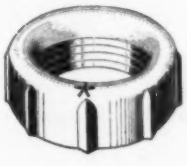
Buy them from your Jobber at $4.50 in 5,000 lots. THINK IT OVER.

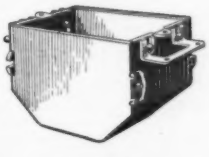
The Thomas & Betts Co.

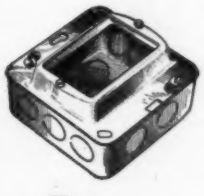
63 VESEY ST., NEW YORK CITY

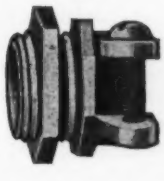
STEEL CITY PRODUCTS











THE installations you make—the service you render—and the profits you receive are dependent upon the quality and economy of the materials which you use.

WHEN STEEL CITY conduit fittings are used in your installations, you are giving your customers the utmost in quality and at the same time decreasing labor costs to the minimum which aids very materially in causing the job to show a profit for *you.*

STEEL CITY Products are quality products—but produced at a price which permits quality and economy to meet on the same job.

Complete stocks are carried by your jobber or can be secured through our nearest representative.

Write today for your copy of our new Catalog No. 34.

Steel City Electric Co.

PITTSBURGH PENNSYLVANIA

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

•MANUFACTURING•

A Department Devoted to the Latest Devices Used by the Electrical Contractor and Dealer

New Wiring Devices

A new Pull Socket, manufactured by Harvey Hubbell, Inc., Bridgeport, saves time and simplifies the wiring of candle fixtures. The outstanding features of this socket are the fully accessible locations of the terminal binding screws and the screws which hold the detachable hickey to the socket body—both sets of

screws are located so as to extend above the level of the candle saucer, permitting quick and easy attachment of the hickey to the socket body, and as well, of the wires to the terminal binding screws.

The detachable hickey can be removed in a few seconds and screwed on the fixture before the wires are attached to

the binding screws of the socket—eliminating all wire twisting. Wiring is further facilitated by large binding screws and deep raceways for wires, both of which are located on the *outside* of the socket. Chain is equipped with detachable acorn, permitting it to be dropped through a hole in the bobesche, if desired.

This company also announces the development of a new Sidewired Convenience Outlet, made with black composition body, double Te Slots, and standard phosphor bronze double contact springs. Terminal screws are large, and ample space has been provided for wiring. A broad bearing surface allows a flush plate.

A further development is a small composition Attachment Plug suitable for lamps, small portables, and other similar devices. Its features include. strong, black composition body, handsome fluted composition cap with heavy plates and large binding screws, and ample wiring space at terminals for lamp cord.

Improved Clothes Washer

Although the new clothes washer announced by the Western Electric Company, New York City, differs in appear-

ance from the old, the principle of operation remains the same.

Intensive research and rigid tests, in the estimation of the company, have proved that the revolving, reversing principle is one of the most efficient methods for washing clothes clean without injury to fabrics. And so, while additions and refinements make the improved washer more convenient to use, easier to care for and more pleasing to the eye, its basic ruggedness remains unchanged.

Today's Western Electric Clothes Washer is all metal, with a special enamel finish chosen for its resistance to soap and water. The straight panels, beside being easy to keep clean, conceal all mechanism and protect the clothes from possible contact with oily parts.

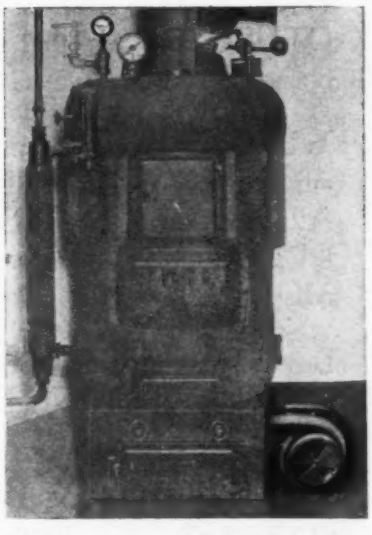
Both the cylinder and wringer controls are easily reached from any side of the washer, and the all metal swinging wringer locks into any one of five operating positions.

Draft Blower for Furnaces

An electric blower for furnishing forced draft under the grate of a boiler or furnace used for house heating has been put on the market by the Coppus Engineering Corporation, Worcester, Mass.

The blower is operated by one twelfth horsepower, sixty cycle, one hundred ten volt Westinghouse motor. The fan, which is a hard aluminum casting with perfect running balance, is mounted directly on the end of the motor shaft, making a very compact and simple unit.

With the blower it is possible to burn the cheaper grades of coal, such as buck-



wheat and screenings, at a saving over the more expensive kinds. By means of an inlet damper the air delivered by

Connecting a branch to the main

How the big Power Co's do it

There is economy in making every electrical connection by the Dossert Solderless method—giving greater conductivity than the wire itself—and without the fuss, danger and damage to insulation that high heat imposes.

The Dossert 15th Year Book below illustrates and describes the services of the different connectors.

This is a DOSSERT SOLDERLESS Cable Tap

GET THIS BOOK

FREE

Dossert & Co.
242 West 41st St.
New York, N. Y.

The Contractor

wants a conduit with clean threads and smooth interiors so that he can install and fish it easily. And for the sake of his customer he wants a conduit protected from rust.

Clifton Conduit

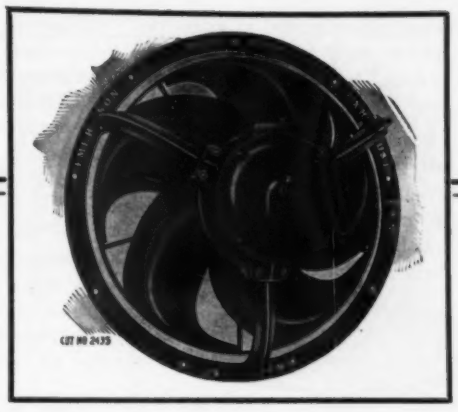
Enameled or Galvanized,

is a practical conduit exactly suited to the contractor's needs. It is made from high-grade steel pipe carefully enameled or galvanized to protect it from corrosion. And the threads are sharp.

Clifton Manufacturing Co.

BOSTON, 61 Brookside Ave. 30
NEW YORK, 26 Cortlandt Street
BUFFALO, 34 Sayre Street
SAN FRANCISCO, 509 Mission Street
CHICAGO, 9 So. Clinton Street

Friction Tape. Splicing Compound.



Emerson Exhaust Fans

Pure fresh air is necessary the year 'round in public halls, theatres, stores, restaurants, churches, factories and places for public gatherings.

Emerson Davidson Blade Exhausters in 12-inch, 18-inch and 24-inch sizes are big powerful fans moving large volumes of air without undue noise or excessive consumption of electricity.

Parker Blade Exhausters in 12-inch, 15-inch and 18-inch sizes are highly satisfactory where extreme quietness is not important.

All fans supplied for all commercial voltages and frequencies.

Emerson exhaust fans can be installed at reasonable expense and will give prompt relief from unsatisfactory conditions.

Louvers supplied with 18-inch and 24-inch fans.

Engineering advice, without obligation, for any contemplated installation.

The Emerson Electric Mfg. Co.

Church Street, New York City
2018 Washington Ave., St. Louis, Mo.

The Emerson Company Sells no Apparatus at Retail.

EMERSON

the blower can be regulated in quantity and pressure to meet the conditions of the fuel bed and to give complete combustion.

New Luminaire Developed

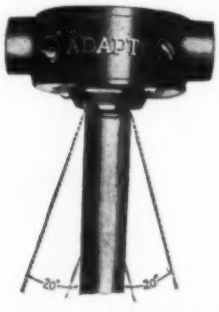
A new standardized fixture for home, hotel, club, or similar use known as the Mazelite has been placed on the market by the Edwin F. Guth Co. of St. Louis.

The reflector is twelve and one half inches diameter, bowl six and one quarter diameter, for seventy five, one hundred, one hundred fifty watt lamps. The bowl is made of extra dense ivory tinted glass. The reflector is finished in oxidized silver with gold high lights.

It is more efficient than most highly decorative fixtures. The dense bowl reduces brilliancy to a low value providing a restful light; its distribution characteristics is wide thoroughly lighting room corners. Its standardized construction reduces the cost. It is easy to clean without danger of breakage; close ceiling mounting reduces possibility of tampering and makes it available for low ceiling rooms.

New Outlet Box Cover

A new type of outlet box has been placed on the market by the Adapti Company of Cleveland, called the Always Vertical Cover, particularly designed for use where rigid pendants

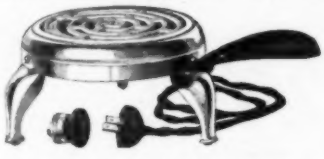


must be supported vertically from outlet boxes installed on uneven or sloping beams or ceilings; or for wiring runs where the boxes are supported from the conduit itself.

By means of a simple universal joint the pendant automatically adjusts itself in a true vertical position irrespective of considerable variations of the position of the supporting outlet box from the horizontal—a matter of importance where a number of pendants are installed in a line, and where consequently, the least variation of alignment is noticeable. The universal joint is so made that although it permits the pendant to adjust itself freely, as much as 20 degrees in any direction it cannot revolve or twist the wires in the tube.

New Hot Plate

The Liberty Gauge and Instrument Company, Cleveland, Ohio, has just announced a new member of the famous Liberty line of hot plates. It is called



the Hot Spot and is designed to meet the demand for a high quality plate at a reasonable price.

The frame and legs are of steel, copper nickel plated. The element base is pure white porcelain composition. Element is genuine Nichrome.

Condensed Notes of Interest to the Trade

Announcement is made by Altorfer Brothers Company of Peoria, Ill., of the appointment of R. W. Gorham as sales manager, effective November 1. Mr. Gorham has served as sales manager of a number of large eastern and midwest companies and recently has had extensive experience in the electrical industry in connection with the handling of the products of the Altorfer Company.

In order to acquaint the public with the importance of good light the Holophane Glass Company of New York City is publishing a series of its popular magazine advertisements for the benefit of the trade, and it advises that it will furnish free specifications to electragists on lighting jobs they are figuring.

Important changes have been announced by the General Electric Company as follows: The publication and advertising departments were combined as of December 1 with Martin P. Rice in charge. Frank H. Gale, formerly advertising manager, will assist Dana R. Bullen, who was recently appointed assistant vice president. C. W. Stone will continue as manager of the central station department, and M. O. Troy of the transformer department has been appointed executive assistant manager under Mr. Stone.

The appointment of E. W. Martin as Chicago district manager of the Valley Electric Company, St. Louis, has been announced. Mr. Martin was formerly associated with the Westinghouse Company. C. L. Krentz has been appointed in the sales department at the home office.

The government of Japan has conferred the second degree order of the Sacred Treasurer upon Gen. Guy E. Tripp, chairman of the Westinghouse Company. This is the highest decoration that can be awarded a civilian foreigner by the Japanese government.

"Electric Daylight in Your Kitchen" is the title of a popular leaflet just issued by the F. W. Wakefield Brass Company of Vermilion, O.

An eight page envelope folder setting forth its Baby Denzar unit has been issued by the Beardslee Chandelier Mfg. Company of Chicago.

W. J. Lloyd, general superintendent of the West Lynn works of the General Electric Company, died suddenly on October 28.

N. A. Barnell has been appointed assistant sales manager of the P. A. Geier Company of Cleveland. Mr. Barnell in point of service is the third oldest member of the sales department of that organization.

The Westinghouse Company has printed a booklet entitled "Bright Streets Are Busy Streets", being the substance of a paper presented by L. A. S. Wood of that company at the twenty eighth annual convention of the International Association of Municipal Electricians.

L. E. Voyer, assistant local sales manager of the Edison Lamp Works at San Francisco, died October 27 after an illness of five days.

The Standard Underground Cable Company announces the following changes recently made in its Perth Amboy, N. J., organization: H. W. Fisher becomes technical director of electrical engineering, while continuing also as manager of lead cable and rubber departments. R. W. Atkinson has been appointed chief electrical engineer, and G. J. Shurts has been made production manager of the lead cable department.

UMI

The Cord is Part of the Tool

Protect it to keep the Tool in use

The portable cord is the artery through which the power flows that keeps your tools productive. To avoid delays and accidents it must receive the same careful attention that is given the tool itself.

A **Reelite** will keep your light and power portable cords neatly coiled in its steel container, free from kinks, breaks or tangles. It will pay out the cord as needed and then retrieve it automatically when the job is finished. The action is similar to that of a window shade.

Reelites are built in all sizes—from a tiny one designed to handle 10 feet of lamp cord to the big Mogul Type that will take care of 125 or more feet of heavy power cable. There is a **Reelite** adapted to each and every one of your power or light extension requirements. When once installed they will soon pay for themselves in convenience, reduced cost of cord maintenance, increased production and elimination of accidents.

Write for Folder 314 describing the various types of **Reelites.** It will be sent free on request.

APPLETON ELECTRIC COMPANY

Factory and General Offices

1704 Wellington Ave., CHICAGO

Reelite

REG. U.S. PAT. OFF.

Everywhere!

Wherever an electrical wiring job calls for the utmost in service and quality — there you will find Sherarduct. Because Sherarduct has proved its superiority in thousands of structures large and small throughout the entire world.

Send for literature and prices.

National Metal Molding Company

1355 FULTON BLDG.
PITTSBURGH

Represented in All Principal Cities

Sherarduct

RIGID CONDUIT

SHERARDUCT

(8)

Radio Service was begun in June, 1922, as a supplement to The Electragist. It is now issued as part of the magazine.

RADIO SERVICE

All Communications Should Be Addressed to
THE ELECTRAGIST RADIO SERVICE
15 West 37th Street, New York City.

The Electragist, formerly Electrical Contractor, was established 22 years ago as the official journal of the National Association.

DECEMBER, 1923

Supporting the Broadcasters

Many phases of radio have been worked out very satisfactorily. The wave lengths that were allocated last year have proved very successful. The licensing system used by the government seems to be giving satisfaction as a whole although changes may have to be made from time to time to meet new conditions.

One thing that has not been definitely settled yet is the financial support of broadcasting stations. Up to the present time the money for the support of these great institutions has come from those who have found it necessary or profitable to carry on the work. Chiefly the support has come from the manufacturers of radio equipment. Without broadcasting there would be no radio business as we know it today, and therefore the broadcasting is a service that has to be carried on. In other cases department stores, newspapers, and merchants of various kinds find that the publicity attendant upon operating the station is a paying proposition.

Whether contributions from these sources will always continue is a question. So far the artists and others who have entertained radio audiences have contributed their services. Recent actions by a theatrical association tend to indicate that members of the association would require payment for their services in the future seems to presage the coming of an era when broadcasting talent will require payment for its services. Under these conditions, it is doubtful whether the majority of stations can carry on with the new added expense. Somebody has to pay the piper, and the question is—how is the piper going to be paid?

In England they have attempted to settle the question by licensing receiving stations, charging a fee, and contributing this fee to the broadcasting companies. Australia has for some time been considering the question of licenses. It is doubtful whether such a system could ever be worked out satisfactorily in this country but wonders have happened before.

We have prohibition and income taxes.

That Elusive Saturation Point

Two years ago, some people said that people would have soon bought all the radio apparatus they needed, and that the saturation point would soon be reached, after which—and so on.

Since that time some millions of radio sets have been manufactured and sold, and from the looks of things at present the saturation point is like the end of the rainbow; the more you go toward it, the further it goes away.

It has been estimated that at the present time one family in four hundred owns a radio receiver of some description. H. T. MELHUISH, assistant sales manager of the Radio Corporation of America, says that if these figures are nearly correct, that all of the great volume of business that has been done to date has made little impression on the market.

It is also estimated that there are close to two million receivers in use today and that of this number, one third are immediate prospects for newer or larger sets.

Replacement Accessories

Vacuum tubes and batteries constitute the bulk of the replacement accessories handled by the radio dealer. The user of a receiving set is bound to buy these accessories from time to time to keep his set in operating condition.

The dealer who is selling more sets all the time should make a determined effort to keep this replacement business. Like compound interest, it keeps growing bigger and bigger all the time. If the radio dealer who sells three hundred sets per year could get all the replacement trade, he could in a few years live on the profits of the replacement business.

A phonograph manufacturer once said that given a sufficient profit on the records, the company could well afford to give the machines away. The same principles applies to radio but no dealer expects to give away receiving sets.

Sticking to Published Programs

Some little criticism has been made by radio listeners of broadcasting stations which do not stick to published programs. It has been the observation of the editor that a very high percentage of stations do stick pretty closely to the programs that they have prepared in advance. On some occasions there has been some deviation but no serious inconvenience ever arose on account of it.

A program director, answering this criticism, states that where deviations have occurred in programs, the cause has usually been a last minute change in engagements of an artist or illness, neither of which occurrances can be controlled by the station. This director points out that the programs appearing in the daily papers have to be arranged and sent out from five to seven days in advance. Considering the fact that the artists receive no recompense for their services, it is natural that occasionally an artist receives an offer of a paying engagement, and it is not difficult for an artist to make a decision in a case of this kind.

Another source of occasional annoyance to the radio listener is that his requests for certain things on the program are ignored. It must be remembered that the station, if it is a large one probably receives several hundred requests of a similar nature and the program director is guided by what the majority of listeners seem to want.

It might be well for radio listeners to consider some of these things when criticising broadcasting. In view of the fact that so far all the entertainment has been provided without cost to the listener, the quality of material sent out has certainly been away above par and occasional annoyances should be put up with.

UMI

KILLARK Bell Transformers

Will not move a meter

Approved by the Underwriters

KILLARK transformers are guaranteed. The purchaser is instructed to return **to the factory** for free replacement any transformer that does not give satisfactory service.

Send for booklet and discount to dealers.

KILLARK

KILLARK ELECTRIC MFG. CO.

3940-48 Easton Ave., St. Louis, Mo.

An Armorclad Rheostat

Made for the UV199 tube and designed to completely eliminate comebacks from dissatisfied customers. Contains a 30 ohm resistance unit that

CAN'T BE HURT

One and a half inches in diameter and tough as a hickory nut. Invisible panel mounting.

Manufactured by

Martin-Copeland Company

PROVIDENCE, R. I.

"The House of Quality Radio Products"

Knu Canopy Insulator

Approved by Underwriters' Laboratories

Can be applied to canopy without the use of tools

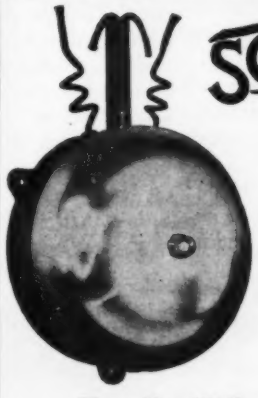
in rolls of 10 *feet.*

ARTHUR F. STANLEY

SELLING AGENT

West & Hubert Sts. **New York**

Telephone 5200 Canal



SCHWARZE

MONITOR

D. C. and A. C.

Vibrating Cyclone Bell

WEATHER PROOF

Type No. 62 For Direct Current
Type No. 72 For Alternating Current

FURNISHED WITH 8-INCH GONG ONLY

For operation on 250 volts or less Alternating and Direct Current.

Has all terminals and current-carrying parts heavily insulated from frame and securely inclosed in metal case. For multiple operation only.

Always Give Voltage of Circuit When Ordering.

WRITE FOR PRICES AND BULLETIN

Manufactured by

SCHWARZE ELECTRIC CO.

ADRIAN, **MICHIGAN**

The Woman as a Radio Buyer

As More and More Business is Being Done With Female Purchasers the Right Sales Appeal Must Be Made

Many industries have started out with entire attention centered on the perfection of mechanical detail and a sincere effort toward reliability, only to land with a bump against some unforseen sales resistance.

Not that radio is meeting any sales resistance, but that the manufacturers and merchandisers of radio equipment have been overlooking one of the greatest buying forces of the nation. That buying power vested in the gentler sex.

For years the automobile was sold to men, made by men and driven by men. Today the woman plays a mighty part in the buying of an automobile. Ease of driving, comforts and luxuries are all being put into the car to appeal to the feminine element. Today many women are drivers. If they are not drivers, at least they have a good deal to say about what make and model of car the family will have. Automobile salesmen are spending considerable time making sales to wives. If the wife is convinced, it is not at all difficult for the wife to sell the husband on the idea. And so the sale is made.

Comparing Phonograph Market

The phonograph market is much in the same condition. It has been said that eighty percent of the phonographs sold are sold to women.

Almost any article used in the home or around the home is influenced in its sale by the woman. Surely the radio receiver comes within this class, and just as surely the woman is going to have a good deal to say about the purchase of the equipment.

Not many women are mechanically inclined. Up to quite recently the receiving sets that have been for sale look complicated, the names of the various parts sound intricate, and many of the cases and panels have been anything but beautiful.

Recent models that have been coming through have shown a decided improvement in both appearance and in simplicity, and there are few of the 1924 models that any woman need be ashamed to have in any room in her house. The wiring is pretty much all self contained, the battery situation can be easily taken care of by installing the batteries in an out of the way place or by the use of dry cells, and the antenna and ground connections can be almost entirely concealed.

Unfortunately not many radio retailers have seen the light of day in this feminine purchasing power and the store and window displays have been scarcely of a sort that would interest the average woman.

Appeal to Aesthetic Sense

There is considerable profit to be made in the selling of the higher priced receiving sets, and the radio dealer will do well to set aside a department for the proper display of these instruments in such a way that the woman will be interested. The average woman will not care so much for a display of intricate wiring, fat looking coils and neatly nested spaghetti covered connections. She will take more interest in the neatly finished panels, the well laid out controls and the simplified labeling. Some manufacturers have gone the extreme limit in simplifying the terminology on panels, leaving out all technical names and labeling dials with an arrow indicating Louder, Wave Length Increase, etc. Perhaps experience will show whether this is best or whether some middle ground is the proper selling basis upon which to approach the woman buyer.

The woman will prefer to take the salesman's word as to what the radio set will do in the way of reception rather than discuss the relative merits of the several circuits in vogue at the time.

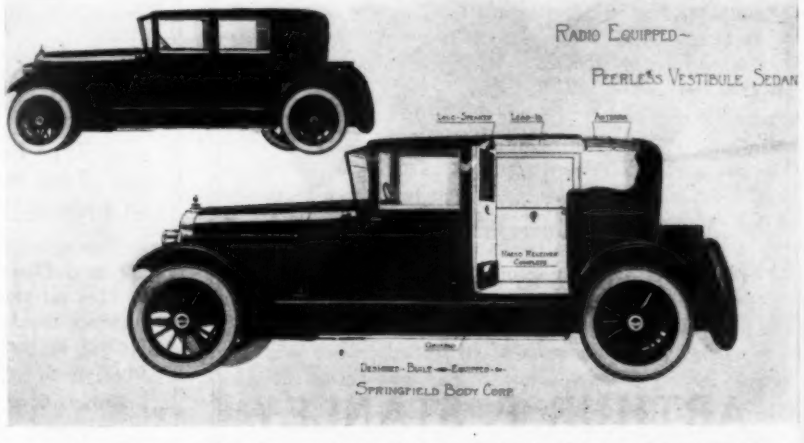
The man who is selling radio sets or anything else of a mechanical or electrical nature does not have to be a mind reader to know that many customers of the male variety have a *little* knowledge and like to display it and that most women will prefer to be considered absolute novices, even if they have acquired some little rudiments of the operation of the apparatus.

The salesman who is making the sales will guide the conversation along the smoothest channels, avoiding the rocks and sandbars that are concealed on either side. To the woman he will talk utility, appearance, ease of operation and whatever else may seem to interest the prospect. To the man, such a salesman will be guided by the knowledge the prospect displays as to whether to talk technical radio or utility.

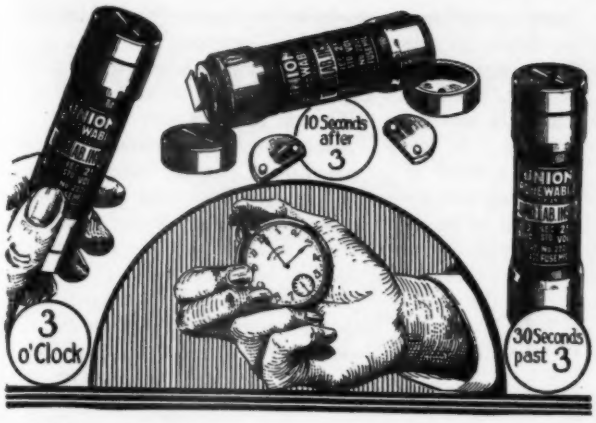
Pointers From Other Fields

It will pay the radio dealer to visit various establishments who are catering to women. Study advertising which is designed to catch the attention of the gentler sex. Some taste, clean display rooms, some neat clean chairs and a table or two on which to display various models. These will be of material assistance in making the sale.

This applies to cases where women customers have been attracted into the store. Advertising of various kinds,



There Have Been any Number of Automobiles and Trucks Equipped With Radio Receiving Apparatus, and the Antenna on the Top is More or Less Familiar. This Peerless Car Exhibited at the Automobile Salon, New York, Recently Held, Has the Antenna Built into the Roof so That it Does Not Show. Similarly all the Other Parts of the Equipment are Concealed With the Exception of the Tuner. The Outfit is Complete Even to a Loud Speaker



New Fuses from Old in 30 Seconds

You can replace a blown link in "Union" ferrule-type fuses in 30 seconds.

Quick renewal is possible with "Union" Renewable Fuses because of few parts, simple construction, and—most important of all—design which prevents fusing and sticking of metal parts.

The vanishing link and specially treated washers in "Union" knife-blade renewable fuses make it impossible for metal parts to stick in

'UNION' RENEWABLE FUSES

Consequently, there is no excuse for workmen to scrap "Union" Fuses instead of putting in a new link. That is one feature which saves money.

And here is another reason why:

"The 'Union' saves more than ANY other renewable fuse."

Heavy, rugged design enables the "Union" to withstand a greater number of blowouts than other makes. So, fewer "Union" Fuses are needed.

Both "Union" Renewable and Non-Renewable Fuses are approved by the National Board of Fire Underwriters.

You can get them from your electrical jobber or dealer.

Ask for interesting catalog.

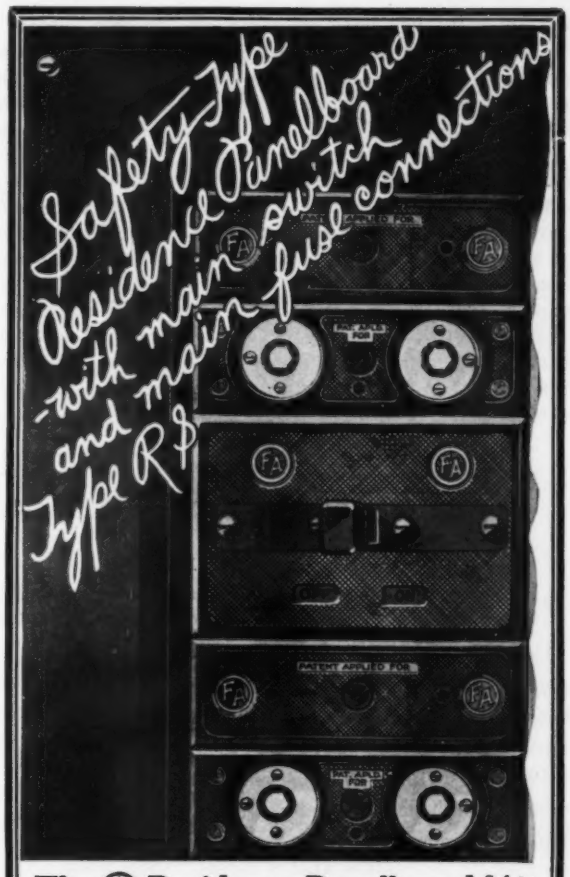
Chicago Fuse Mfg. Co.

Manufacturers also of Switch and Outlet Boxes, Cut-out Bases, Fuse Plugs, Fuse Wire and Automobile Fuses.

CHICAGO NEW YORK

UNION

Reg. U. S. Pat. Off.



The (FA) Residence Panelboard Safety Type

Made With and Without Main Switch

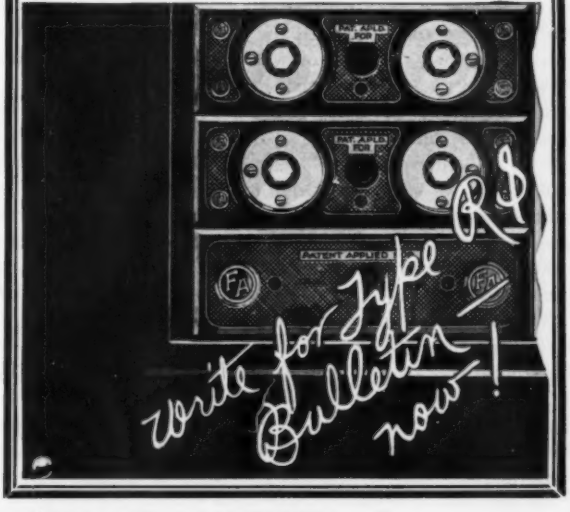
A new, sectionally constructed, standardized, residence panelboard that is entirely a factory product; sold, complete with cabinet, in a package and stocked in standard sizes by jobbers in various parts of the country. It is an absolute safety type and costs less installed than any other residence panelboard ever built.

A Complete Line of *Standardized* Panelboards and Cabinets

Frank Adam

Send for Bulletin ELECTRIC COMPANY *Send for Bulletin*

ST. LOUIS



personal calls, telephone calls and all the other cut and dried method of approach can be used to secure the woman customer, but the approach has to be different.

Demonstration plays an important part in the sale to the woman. Perhaps the demonstration has to be more convincing than in the case of the average man because the woman is a natural born shopper. If she does not like what she hears, she will try two or three other stores till she finds what she wants. The man on the other hand does not care to leave a store where the salesman has gone to considerable trouble unless he buys something. Therefore it is easier to clinch the sale with the man than with the woman.

At this season of the year, radio receiving sets should be brought into the Christmas present campaign. It has been estimated that nearly a third of the present owners of receiving sets are immediate prospects for newer or larger sets. Most women know enough or can find out enough about what husbands, sons or brothers want and the salesman can be of material help in making the proper selection for the Christmas present.

If it is not possible to sell a complete set, make the slogan: "Something for the Radio for Christmas."

A pair of headphones, a new battery, a spare tube or so, another stage of amplification or what not.

A table or show window of suggested "somethings" can be made very valuable. Tags or labels can be used to tell the purposes of the various articles, and further information can of course be furnished by the salesman.

The value to the electragist in getting the woman interested in the radio department of his store is twofold. In many cases he can interest her at the same time in some household utility.

Wired Wireless and Its Commercial Aspect

By General George O. Squier

Government Signal Officer Talked on His Hobby at Last Annual Convention of Association of Electragists

The subject assigned to me is a hobby of mine, because I had the honor of conducting the original experiments which resulted in the invention of that system, in 1909 and 1910, in Washington. We invented the name "Wired Wireless" then, and it seems to be about as good a name as any to explain what it means. Since the mediaeval days of two years ago, when we hadn't heard anything about broadcasting—you will remember we never heard the word until a short time ago—we have seen the most phenomenal advancement in the production and use of electrical equipment that any of us have ever heard of.

I remember as late as the Arms Conference, we had never heard the word "broadcasting" mentioned, and today I don't know how many millions of people are being amused with all sorts of concerts every night through the development of radio. I think you will agree with me that no such movement has ever occurred before. Certainly I have never known of anything like it.

And it behooves us to occasionally take account of stock as to what this all means—what it means to the manufacturer and what it means to each element that is involved in the evolution of this thing called radio.

At present it is uneconomical. It is not organized economically, because there is no way of paying for it, as far as I know. At present there is no way of paying the artists who take part in the broadcasting entertainments. A great many of them believe that the advertising is worth the effort they make. At least it is a novelty. A man buys a set of radio apparatus and puts it up in his apartment, wherever he can, and gets whatever he can from the ether. Sometimes he gets, and sometimes he doesn't. But he has a lot of fun out of it. The whole thing is not organized on a business basis. The people selling the apparatus have sprung up all over the country.

Looking Into the Future

Now it seems to me that this is just the first stage, the first phase of the matter, and we have got to look further to see just what the future will bring forth.

The fact that we have been unable to control this property—that is, we send it out all over the world, and anybody can get it freely if he buys the apparatus—makes it rather difficult to stabilize the business. It is different from almost any other commodity that we have ever had to deal with. So that, as I see it, we are in the very first stages of this matter.

Although millions of these radio sets have been sold, they are at present in the hands of what we might call fans, who really like to tinker with them. From the salesman's standpoint the business is in the early stages of development—very much like the first automobiles that were bought by people who spent Saturdays and Sundays looking up into the machinery as they lay on their backs.

At present the radio people are those who like to tinker with the apparatus, but I believe that we are on the verge of a greater advance, and the people are going to buy the apparatus for the service that it gives. They don't care how it works. They want to turn it on in their houses and get this incomparable service that it gives.

There will always be a large percentage of fans—and some of the most important things have been done by just fans.

But looking at it from your standpoint, how is this service going to be put into the home of everybody, as I believe it will be eventually? There is the large field that we have to consider, and we shall have to consider it from an economic standpoint because this service must be paid for in some way.

At the present time the big concerns are putting on extensive programs, costing them thousands of dollars a year, and giving them away as a matter of goodwill—which is uneconomical of course.

There are two kinds of radio. One is the ordinary radio which comes from a tower, or wire stuck up in the air, from which waves are transmitted, which spread out all over the world, with the velocity of light that is one hundred and eighty six thousand miles a second—the speed these radio messages go.

At present, you cannot guide radio at all. It spills out all over the earth, and everybody, anywhere, gets it. That is what is known as broadcasting.

In 1909 and 1910 we carried out some experiments which proved that radio messages could be put on wires and confined there and guided directly to where you want them,

You'll *sell* this New Cord Set

Put up in attractive individual cartons.

It's priced RIGHT!

Just what you need for a big selling Xmas specialty.

Quality throughout—all American made. Snappy looking black and yellow asbestos cord and 2-piece attachment plug.

Very attractive discounts to jobbers and dealers. Write for details today!

REBEN ELEC. MFG. & SUPPLY CO.
32 Union Square New York City

SEASON'S BEST SELLER

PROPP No. 80—MAZDA XMAS TREE OUTFIT

No. 80 PROPP No. 80

Improved Xmas Tree Outfit

FLEXIBLE PRACTICAL UP-TO-DATE

Build Them As You Like
Catalogue sent on request showing complete variety of Sets, Lamps and other Propp Products

LIBERAL TRADE DISCOUNTS
(Through your Jobber)

THE M. PROPP CO., Manufacturers
524-526-528 BROADWAY, NEW YORK CITY
12 x 18 life size display in 10 colors by request.
Support the Manufacturer With a Jobber Policy

"CENTRAL"
RIGID STEEL
CONDUIT

ELECTRAGISTS can order this guaranteed conduit with an assurance that they are dealing with a concern that has a policy that makes and keeps friends.

This shows a piece of one-half inch "Central Black" wound around three inch pipe. There is no flattening or buckling of the conduit and the enamel has not cracked or flaked off under this severe test.

"Central White"_____galvanized
"Central Black"_____enameled

CENTRAL TUBE CO.
PITTSBURGH, PA.

DISTRIBUTOR GE PRODUCTS

Make this an

Electrical Xmas

It will be profitable to your customer as well as yourself.

THE PHILADELPHIA ELECTRIC COMPANY SUPPLY DEPT.
130-132 South Eleventh Street
Philadelphia

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

You will see then that there are two types of radio—guided and unguided.

Space radio, which we speak of in general, can be thrown across the Atlantic Ocean, or to a ship, where you cannot get any wire to it. The guided radio is that which you put on a wire and guide to a particular room, or table, or wherever you want it.

It is this second phase that is going to solve the problem. The larger number of people are going to use that type of service. And in saying that, I am not in any way disparaging space radio, because I am for it in every way. It is very essential in communicating with ships at sea, and also in reaching great distances. But in my judgment it falls down or will fall down as soon as it attempts to serve the individual house in the rows and rows as situated in cities, which would make a perfectly hopeless mess of things—just as we used to have wires all over the streets, a few years ago, for the trolley cars. They have all got to go, because a single large apartment house would have a thousand intakes, and a thousand other different things.

Looking at it then from a standpoint of delivering this service to cities, and to all places where we have a wiring system, I believe that the final delivery of this service will be on the wire system so that you can take it right out of a lamp socket, just as you do your current for your toaster.

How the New Method Works

I bring to you the fact that we are in my judgment on the verge of a tremendous development of an utterly simple apparatus that will give you a service you don't need to bother with at all, that will be kept up by the service man of the district, and the whole family will be there, and not be absent, on that particular evening when you want it. It will be guaranteed to serve. It is on that feature of it that I want to dwell for a moment.

As I say, it is practically guided radio, by wire. And since there has been built up a tremendous wire system, namely, the electric light and power transportation systems, we find it all ready for our new purpose. We have been hitching on to that wire system pretty nearly everything but the kitchen stove—and even that is being done now. For a number of years nearly everything that serves us as comforts and conveniences in our houses, have come out of that little hole in the wall to which we attached a wire. We have been taking toast out of it, fried eggs, heat, light, massage, and everything you can think of. And now we are going to that same little hole in the wall to get our music and culture and advertising, and information of various kinds.

To do this you will have an utterly simple set that you will not have to tinker with, and the service will be guaranteed; it will be strong and loud, and you will pay for it along with your lighting bill, by the month. Instead of all this expensive mahogany furniture that you now have to buy, that you don't want, the set will be very simple, with only one knob on it, and there will be no batteries connected with it, because you will get it right through the lighting system, and you can secure it any place you wish, either downstairs or upstairs, or in the bathroom—just lift it up and carry it around and attach it wherever there is a lamp socket. That is possible, because it will be received from the central station, just like your power is sent to you, and delivered over a wiring system—that is, a twenty three hundred volt power system will be transmitted right to you in your own home.

Now let us see what will be delivered to you. Fortunately the central station will be able to deliver to you the best selections that are suited to a particular locality. You cannot do that in space radio. The minute anything is sent out in space radio Chicago objects if too much is said about Philadelphia, and if a bedtime story is started in Chicago, it is an hour or two late for the children in the east. You have to be careful too because the government is jealous about what you put into the ether.

But under this new system you can study your locality, and give the people what they want. If it is a mining district you can give them something that is appropriate for your hearers, and if it is the Back Bay Boston district, you can give them something else that will suit that locality better. I say that because I understand there are some people here from Boston and I have always heard that this is a wonderful place.

Sets Within Reach of All

Now such a service is coming very rapidly, and it will mean the sale of these sets at such prices that they will be literally within the reach of everybody. My idea is that the set will be rather small and delicate—probably it will look something like a telephone—and it will take its place in the apartment, and you will not think of living in an apartment without it, any more than you would think of living in an apartment that didn't have electric lights.

The type of service that can be given is unique. In the first place, your central station will pick out of the space radio anything good that it wants for its customers. If there is something especially good going on in Scehenctady that evening, it will automatically take it out of space and send it to you. The central station will send you the very best that the world produces. If there is a prize fight on, of course they will take it over and hand it to you automatically. It is perfectly possible to put in a high class receiving set in the central station and turn a switch and send it right out to you. So first you will select what you want from the world radio, and then you will be able to take the local things, which are more interesting to you than they would be to some other city. They wouldn't allow you to do that for a minute in space radio.

You will be able to get a radio newspaper. That is, the same type of news that is now sent to the newspapers ahead of time, will be sent to you, and you will get it by word of mouth, a little in advance of the newspaper, and later you may find it somewhat amplified in the papers.

You will be able to get the best of the programs that are given out from the larger stations, and then you will have your local things that are interesting to you sent in any way that the customers of the central station want them.

Advertising as Means of Financing

At certain hours you will have your educational features—lessons in French, or whatever the children want. There will be a stream of that coming to you through any lamp socket in your house, that you want to attach to, and it can be listened to by the entire family.

Now in addition to that you can easily have two or three wave lengths, just as they do in the space systems, and have delivered to you other things which are now impossible. For instance advertising would not be permitted in the space radio.

It will be of interest to the women of any locality to know about particular bargains and things of that kind that they want, and that will be told to them by the women who will be trained in that line, and that will be sent out on a special wave length that you can turn to, or leave off if you don't want the information. You will then have a source of revenue which you can really sell and

Rubber Insulated Wires and Cables

National Electrical Code Standard
Intermediate (Red) Thirty Per Cent

Wire built under the direct supervision of experienced engineers, skillfully and honestly manufactured with one purpose and result.

Continuous Service

A-A WIRE CO., Inc.
FACTORY: NEWARK, N. J.
Sales Offices: 50 East 42nd Street, New York City

MERCURY TIME SWITCHES
Leads the Way to Greater Profits

Mercury Time Switches are standard equipment for many of the large users of illuminated sign boards, because they function perfectly and need practically no servicing at all.

Utter simplicity of design and LIQUID MERCURY CONTACT eliminates all friction, arcing and corrosion, and the high quality eight day clock movement is encased in a neat appearing water and weather proof aluminum box.

And the low price asked makes the Mercury the leader in its field.

The electric dealer will find a big market for MERCURY TIME SWITCHES for use on retail store windows, electric sign, bulletin boards, factories and chicken coops.

WRITE FOR FREE TRIAL OFFER AND SPECIAL PROPOSITION TO DEALERS

THE MERCURY TIME SWITCH CO.
103 W. Atwaters Street, Detroit, Michigan
Eastern Representatives.
MANUFACTURERS DISTRIBUTING CO.,
291 Broadway, New York, N. Y.

We Manufacture:—

Rubber Covered Wire—Solid Conductor, Stranded Conductor, Flexible Conductor. Extra Flexible Conductor.

Lamp Cords, Reinforced Cords, Heater Cord, Brewery Cord, Canvasite Cord, Packinghouse Cord.

Deck Cable, Stage Cable, Border Light Cable, Flexible Armored Cable.

Elevator Lighting Cable, Elevator Operating Cable, Elevator Annunciator Cable.

Switchboard Cables, Telephone Wire, Flameproof Wires and Cables, Railway Signal Wires, High Voltage Wires and Cables.

Automobile Ignition Cables, Automobile Lighting Cables, Automobile Starting Cables, Automobile Charging Cables.

Moving Picture Machine Cable.

Boston Insulated Wire & Cable Co

Main Office and Factory:
Dorchester District
Boston, Mass.

Canadian Branch
Office and Factory:
Hamilton, Ont.

PARANITE

RUBBER COVERED WIRES AND CABLES

THE STANDARD FOR THIRTY YEARS

For all purposes. Inside, Outside, Aerial, Underground and Submarine Use.

IF IT'S PARANITE IT'S RIGHT

INDIANA RUBBER & INSULATED WIRE CO.
JONESBORO, INDIANA

New York Representatives:

The Thomas & Betts Co.,
63 Vesey St., New York City

Chicago Branch:

Indiana Rubber & Insulated Wire Co.
210 Marquette Bldg., Chicago.

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

make money out of. I believe that is another way to finance this proposition.

That is the first suggestion that I know of for financing radio. There isn't any such thing at the present time in regard to space radio. I believe the type of service that I speak of is the only hope that I see of distributing this service in a congested city.

For instance take hotels—it will be in every room; it will be a service that will be demanded, and the present way of sending it out and letting each individual fish for whatever he wants in the pond, tinkering around for it all evening, is not the service for the future.

In order to use the present system, you have got to stop your work and sit down and devote your entire attention to it, but under the new system you can work while you listen. In the army we play music for the men to march by. In factories in the future the workmen will be given music to work by. The immigrant, landing upon our shores, will be able to have things said to him in his own language—a big educational feature.

This thing is perfectly staggering; it draws our thoughts away from the little petty things that occur in our daily life. If you think of it, the tremendous power of wired wireless, if properly used, will be a wonderful agency for good, and in my judgment that system is coming very fast.

So I am here to accentuate the only way to distribute this system. In congested districts, in cities, the only way I can see to do it, is to put it right over the wiring system, which we have learned to turn to for everything we do. It is already built, it is there, and delivers these other things, and this new system of radio will not interfere with your lighting or power system at all.

In other words, you will have a triple socket—one for the lamp, one to run the toaster or the flat iron, and the other for the radio, and you will turn it on just as you do the lamp. You will be able to reach right up and turn the music on or off.

And this service will be given at such a low price that it will bring it within the reach of the mechanic, the wage earner.

And it is an essential service in my judgment and will open up a tremendous field for salesmanship. In fact I expect to see this bought just like flatirons are bought. Or you may have to rent the sets. That is for you gentlemen to work out.

But there is where the manufacturing problem comes in; there is where the reservoir of radio is to be tapped, as a real economical proposition.

Better Broadcasting

Washington to Send Out Features Twenty-four Hours a Day

Broadcast fans within fifteen hundred miles of Washington are certain to be informed immediately by radio of important events affecting the country. Two class B transmitting stations are open throughout the twenty four hours, sending out news, music, entertainment and other features.

NAA at Arlington has been relieved of most of its unofficial broadcasting, including the transmission of the Army, Naval and Marine Band concerts, by two limited commercial stations of high class and power. WCAP of the Chesapeake and Potomac Telephone Co. and WRC of the Radio Corporation. Working alternately, these stations will keep the country in close touch with the government's activities, including from time to time the voices of the White House and Capitol.

For example, WCAP broatcast Lloyd George's address recently and ex President Wilson's first speech since his illness. WRC is transmitting music from military and naval orchestras and bands, and has just inaugurated a series of talks by government officials and heads of national organizations. Both stations are handling matter never before available outside Washington,

Among the new features introduced by WRC are instruction in radio, including code practice, three times a week; a weekly midnight show; lectures on travel, exploring, scientific events, and navy nights.

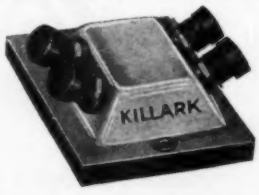
WCAP, while without a studio for transmitting, by means of its land lines and field radio truck can broadcast practically anything which happens in the capital.

Radio Week Successful

There was ample evidence at the close of it to show that Radio Week observed from November 25 to December 1 was one of the most profitable activities introduced thus far into the realm of radio work. Newspapers in practically every city in the country coöperated by enlarging the space ordinarily used for the publishing of radio programs and news, and in some cases elaborate sections were issued during the week. Manufacturers, jobbers and dealers in every locality report a greatly increased business due to the impetus of this week's promotional work.

Killark R. F. Transformer

A radio frequency amplifying transformer that may be used with either an



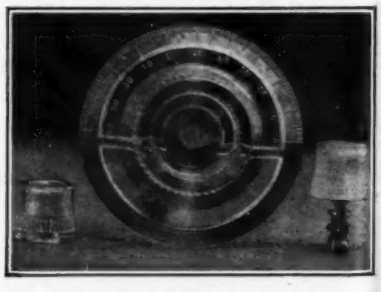
indoor loop or an outdoor antenna is being marketed by the Killark Electric Mfg. Co., St. Louis, Mo. It is made in four different types.

Type K 1 is used on a receiving set containing one stage of radio frequency amplification or in the first step of a two or three stage set. Type K 2 is used in the second step of radio frequency in a two or three stage set. Type K 2A is used in the second step of radio frequency when 201A or 301A tubes are employed. Type K 3 is used in the third stage of radio frequency in a three stage set.

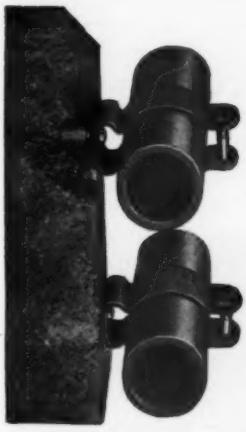
Each amplifier is packed in an individual carton with a wiring diagram showing the correct hookup. The case is of polished nickel mounted on a fiber base. All thumb nuts are of rubber and are marked so that the amateur will have no trouble in assembling the set. The price is $4.50.

Glass Dials for Radio

Dials and other radio parts made of glass are being placed on the market by Peterson & Hoffman, Millville, N. J. The glass is moisture proof and a good



non-conductor. The lines and figures are molded into the glass so that there is no likelihood of their rubbing off. The dials are made to fit the various standard size rods and screws used in radio work.



Right "up against the wall"

WHAT?

Cable or Conduit. How does it get that way?

The best way to install conduit on smooth surfaces, such as brick, concrete and tile, is to use anchor and bolt in connection with the

Minerallac Cable and Conduit Hanger

Japanned or Galvanized.

Seven Sizes.

MINERALLAC ELECTRIC COMPANY

1043-1045 Washington Blvd., CHICAGO, ILLINOIS

10¢ plus 5 minutes

JOBBERS!

Eventually you will add this staple, fast selling article to your stock as the contractors will not be without these time and money saving strips. No doubt many of your customers are using them now. Have your salesmen investigate and see if this is not true.

CONTRACTORS AND DEALERS!

Kruse Strips are made of sheet metal, so they may be cut the desired length with your snips. Made 18" long. A hammer, four nails and three minutes' time is all you need to install a box or a gang of them.

NEW LOW PRICE MADE JULY 17TH

A card will bring a sample set, or $1.00 will bring twelve (12) sets by prepaid parcel post.

MIDWEST METAL PRODUCTS COMPANY

Munice, Indiana

BARD-PARKER
Wire Insulation Stripper
(WOOD PATENT)

No. 1 TOOL

Regularly Equipped with 3 hole blades for size No. 11 and smaller. Interchangeable single hole blades for any special size desired also supplied when specified.

CAN STRIP 1200 ENDS AN HOUR

Write for particulars.

$5.00 F.O.B.

NEW YORK

BARD-PARKER COMPANY, Inc.

150 Lafayette St., New York City

To ELECTRICAL CONTRACTORS who install Driven Grounds (rods, pipes, etc.):

You may obtain MOST RELIABLE GROUNDS with

"COPPERWELD"

TRADE MARK REG. U. S. PAT. OFF.

GROUND RODS

(The solid steel core is surrounded by a thick layer of permanently welded copper)

THEY DO NOT RUST

NO FITTINGS REQUIRED

They come in ONE PIECE, pointed —ready for driving

They are better for your customer
They are better for the lighting company
They are better for you and will be permitted under the new National Electrical Code
Shipment from stock, with or without pigtails. Address nearest office

COPPER CLAD STEEL COMPANY

NEW YORK SALES OFFICE: 30 CHURCH STREET, NEW YORK

CHICAGO SALES OFFICE 129 S. JEFFERSON ST., CHICAGO

MAIN OFFICE AND WORKS: BRADDOCK P. O. RANKIN, PA.

DISTRICT REPRESENTATIVE, C. E. INGALLS, SAN FRANCISCO

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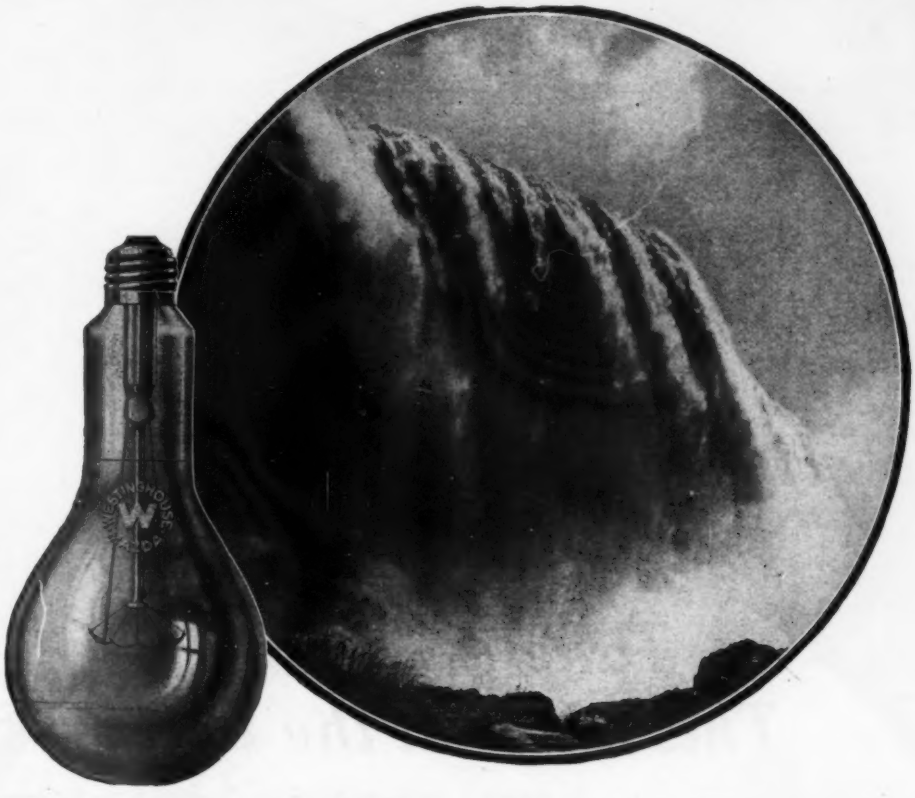
NEXT ANNUAL CONVENTION, WEST BADEN SPRINGS, INDIANA, WEEK OF SEPTEMBER 29, 1924



The Test of Quality is Demand

The capacity of one of the largest hydro-electric power plants at Niagara Falls is over 227,000 kilowatts.

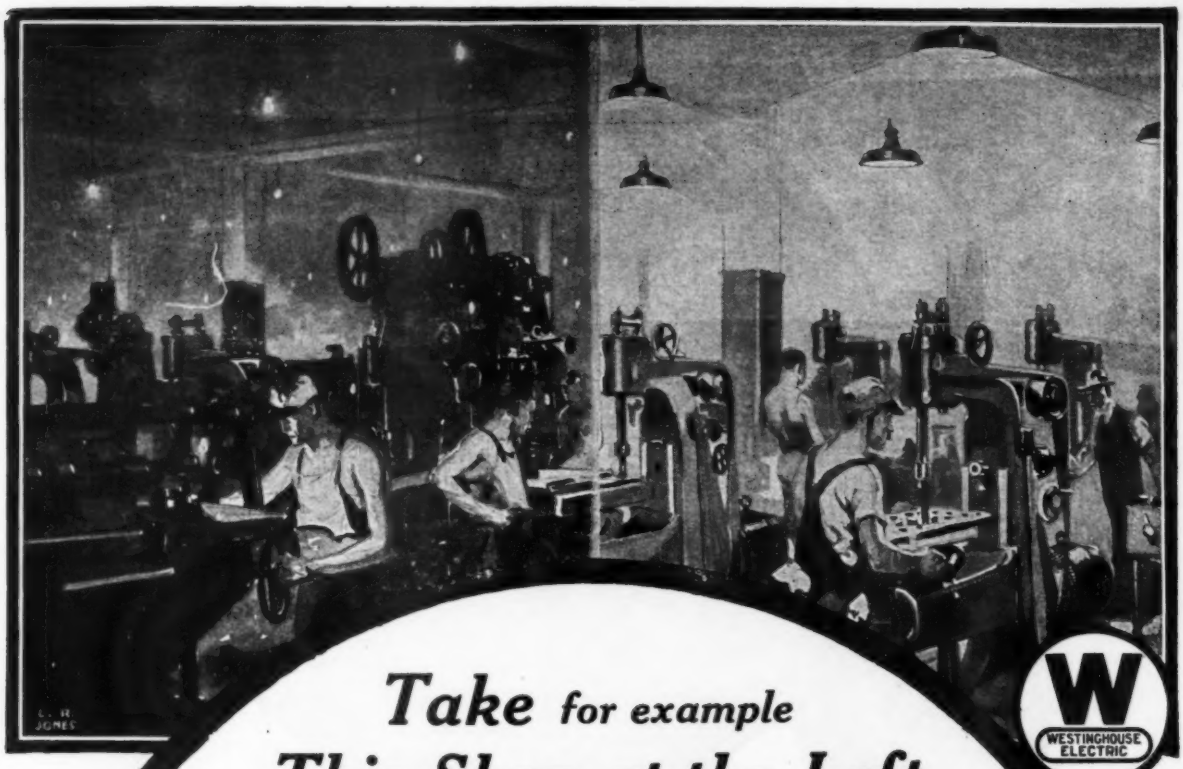
As huge an amount of power as this represents, it would not be sufficient to light the total number of Westinghouse Mazda C (gas-filled) Lamps manufactured in a period of thirty days.

The demand for Westinghouse Mazda C Lamps has increased so tremendously that it has necessitated a constant expansion of manufacturing facilities.

This is due directly to the proven fact that the Mazda C Lamp, when used with the proper reflector, is the most efficient and economical lamp for the general lighting of factories, offices, and stores.

WESTINGHOUSE LAMP COMPANY
165 BROADWAY, NEW YORK, N. Y.
Sales Offices and Warehouses Throughout the Country
For Canada: CANADIAN WESTINGHOUSE CO., Ltd., Hamilton, Canada

Westinghouse



Take for example
This Shop at the Left

Having lamps of adequate candle power and using sufficient current, yet lacking the very essentials of scientific industrial lighting, such a shop offers a profitable field for enterprise to every electrical dealer.

The investment required for shop or factory owners to create the desirable lighting condition shown in the right hand illustration is very small when compared with the resulting production increase, yet the burden of inducing proper changes often falls upon the dealers.

But the dealers' difficulties are minimized when they are provided with the special information furnished by Westinghouse Lighting Specialists and the Westinghouse Illuminating Bureaus.

Furthermore, Westinghouse lighting equipment embodies features which are as attractive to contractors and dealers as to the customers. Westinghouse Reflector-Socket Fixtures are easy to wire. Installation can be made by one man at the rate of three minutes to a unit. And the simplicity and ease of installation are factors which determine whether or not the dealer can go after competitive business and make a good profit on the job.

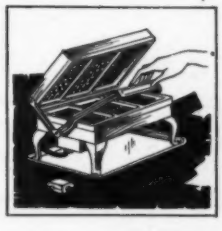
Write for any information on industrial lighting.

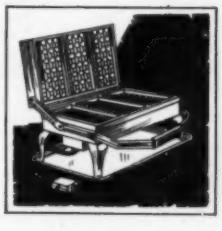
WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
GEORGE CUTTER WORKS, SOUTH BEND, INDIANA
Sales Offices in All Principal Cities of the United States and Foreign Countries.

Westinghouse

ELECTRAGISTS USE THE PRODUCTS OF ADVERTISERS IN THE ELECTRAGIST

Waffle and Sausage Time is Here





On these cool, snappy mornings folks require substantial food to fortify themselves against the ever-advancing chills of Old Man Frost.

Yet, to get up half an hour earlier, even for a good strength-renewing breakfast, would be a hardship for the whole family. The Westinghouse Waffle Iron means waffles for breakfast without leaving the downy couch one minute earlier than usual.

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Pass & Seymour, Inc.
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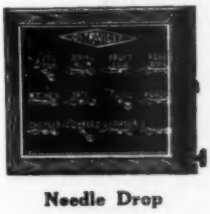

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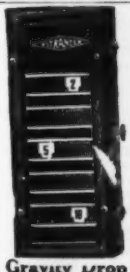

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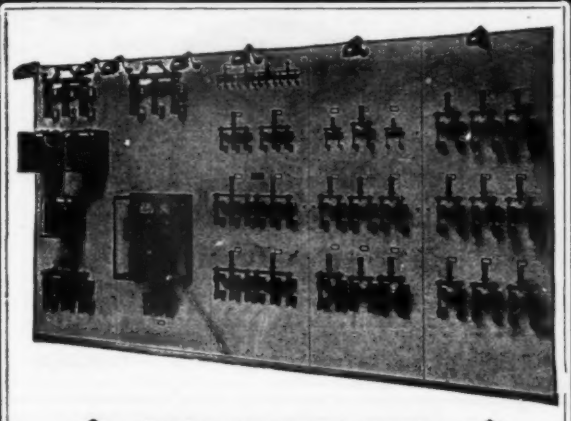

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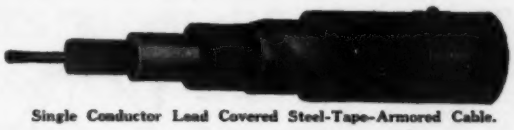

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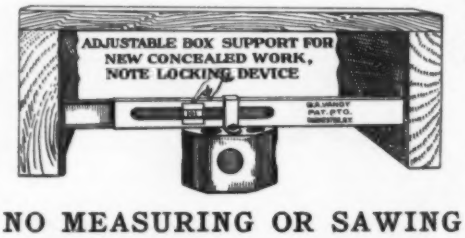

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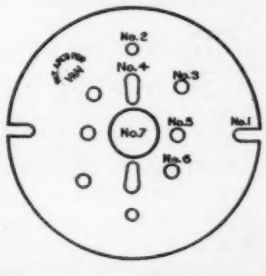

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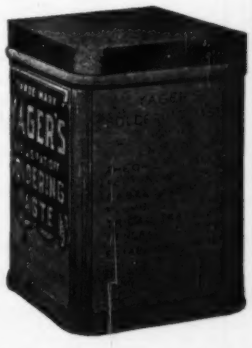

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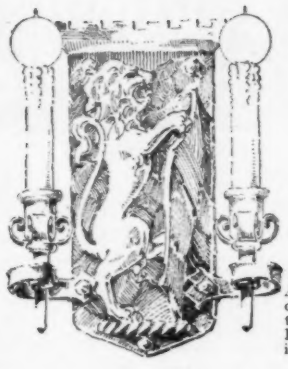

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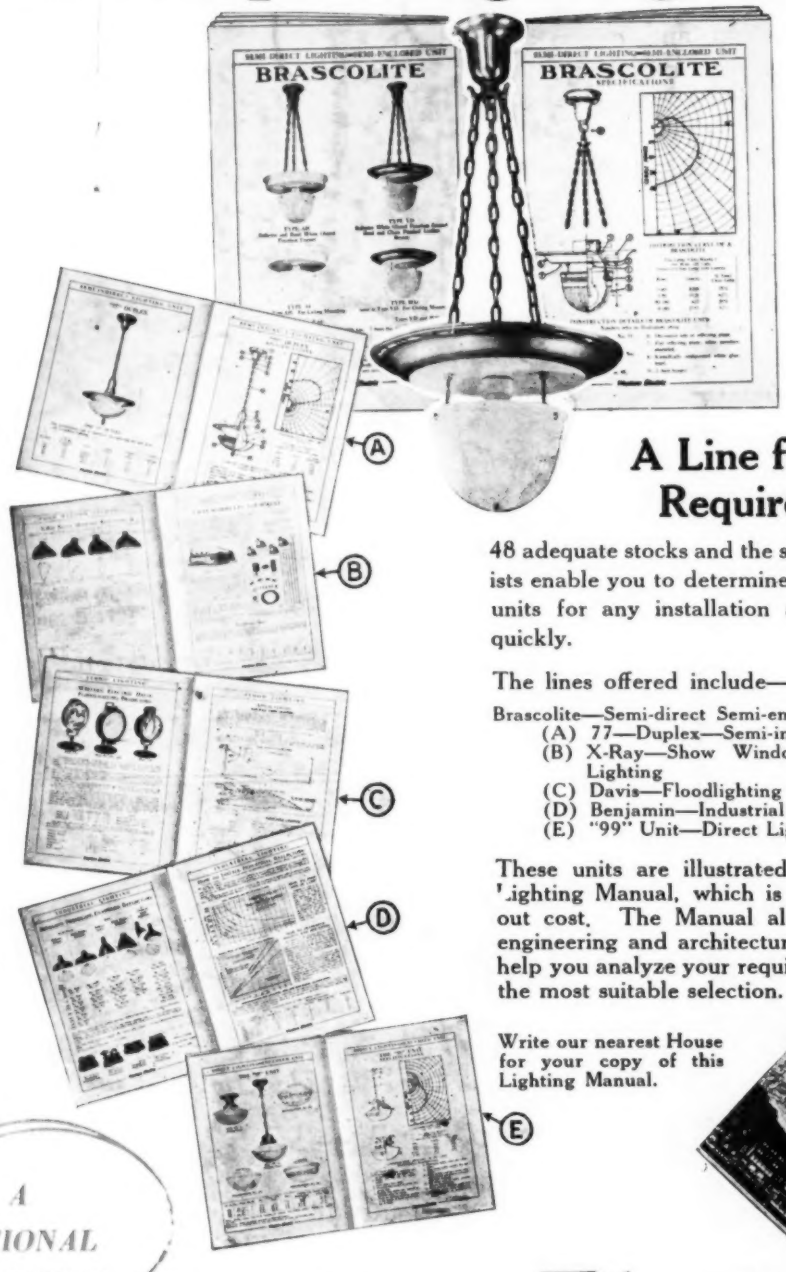

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